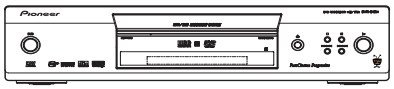
Pioneer sound.vision.soul

Service Manual



DVR-810H-S

ORDER NO.
RRV2814

DVD RECORDER

DVR-810H-S
DVR-57H

THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).

Model	Type	Power Requirement	Regional restriction codes (Region No.)	Remarks
DVR-810H-S	KU	AC120V	1	
DVR-57H	KU	AC120V	1	

For R/RW Recorder section, this service manual includes only EXPLODED VIEWS except Traverce Mechanism Assy-s, Blockdiagram and MAIN ASSY contrast table. For the detail of R/RW Recorder section, refer to the service manual for DVR-105(Order No.RRV2706).

NECESSARY INFORMATION FOR DHHS RULES MARKED ON THE TOP COVER BELOW:

DANGER-VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN. AVOID DIRECT EXPOSURE TO BEAM.

For details, refer to "Important symbols for good services" .

PIONEER CORPORATION 4-1, Meguro 1-chome, Meguro-ku, Tokyo 153-8654, Japan
PIONEER ELECTRONICS (USA) INC. P.O. Box 1760, Long Beach, CA 90801-1760, U.S.A.
PIONEER EUROPE NV Haven 1087, Keetberglaan 1, 9120 Melsele, Belgium
PIONEER ELECTRONICS ASIACENTRE PTE. LTD. 253 Alexandra Road, #04-01, Singapore 159936
ⓒ**PIONEER CORPORATION 2003**

T-ZZR SEPT. 2003 printed in Japan

SAFETY INFORMATION

This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.
Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

WARNING

This product contains lead in solder and certain electrical parts contain chemicals which are known to the state of California to cause cancer, birth defects or other reproductive harm.

Health & Safety Code Section 25249.6 – Proposition 65

NOTICE

(FOR CANADIAN MODEL ONLY)

Fuse symbols (fast operating fuse) and/or (slow operating fuse) on PCB indicate that replacement parts must be of identical designation.

REMARQUE

(POUR MODÈLE CANADIEN SEULEMENT)

Les symboles de fusible (fusible de type rapide) et/ou (fusible de type lent) sur CCI indiquent que les pièces de remplacement doivent avoir la même désignation.

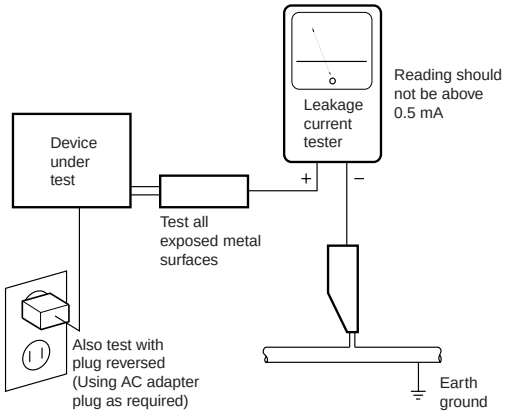
(FOR USA MODEL ONLY)

1. SAFETY PRECAUTIONS

The following check should be performed for the continued protection of the customer and service technician.

LEAKAGE CURRENT CHECK

Measure leakage current to a known earth ground (water pipe, conduit, etc.) by connecting a leakage current tester such as Simpson Model 229-2 or equivalent between the earth ground and all exposed metal parts of the appliance (input/output terminals, screwheads, metal overlays, control shaft, etc.). Plug the AC line cord of the appliance directly into a 120V AC 60 Hz outlet and turn the AC power switch on. Any current measured must not exceed 0.5 mA.


Reading should not be above 0.5 mA
Leakage current tester
Device under test
+
–
Test all exposed metal surfaces
Also test with plug reversed (Using AC adapter plug as required)
Earth ground

AC Leakage Test

ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

2. PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in the appliance have special safety related characteristics. These are often not evident from visual inspection nor the protection afforded by them necessarily can be obtained by using replacement components rated for voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual.

Electrical components having such features are identified by marking with a ⚠ on the schematics and on the parts list in this Service Manual.

The use of a substitute replacement component which does not have the same safety characteristics as the PIONEER recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, or other hazards.

Product Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current PIONEER Service Manual. A subscription to, or additional copies of, PIONEER Service Manual may be obtained at a nominal charge from PIONEER.

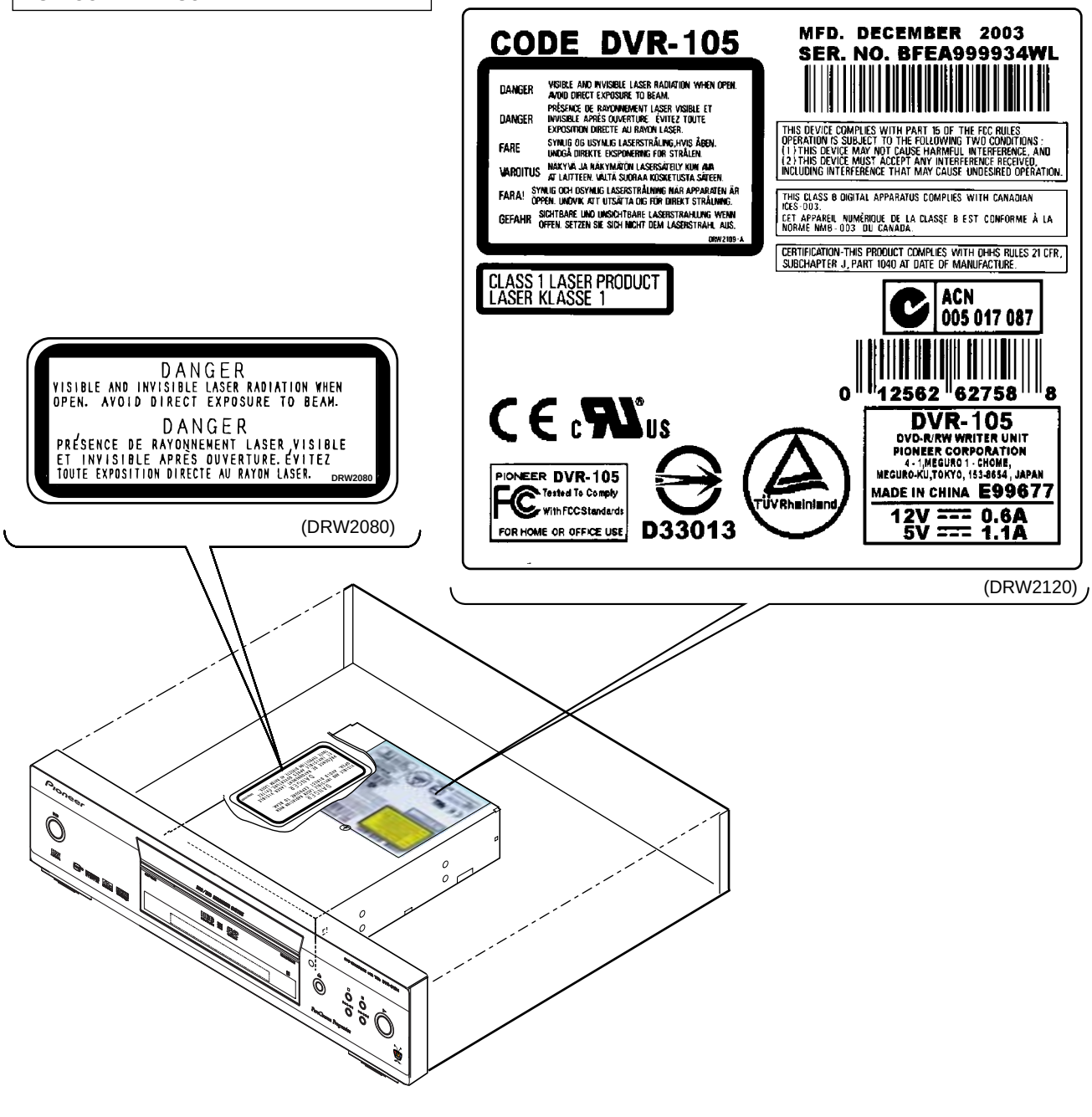
■ LABEL CHECK

IMPORTANT

THIS PIONEER APPARATUS CONTAINS INVISIBLE LASER OF CLASS 3b and VISIBLE LASER OF CLASS 2.
SERVICING OPERATION OF THE APPARATUS SHOULD BE DONE BY A SPECIALLY INSTRUCTED PERSON.

LASER DIODE CHARACTERISTICS
MAXIMUM OUTPUT POWER: 25 mW
WAVELENGTH: 654 - 662 nm

LASER DIODE CHARACTERISTICS
MAXIMUM OUTPUT POWER: 36 mW
WAVELENGTH: 780 - 787 nm


CODE DVR-105
MFD. DECEMBER 2003
SER. NO. BFEA999934WL
DANGER VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN. AVOID DIRECT EXPOSURE TO BEAM.
DANGER PRÉSENCE DE RAYONNEMENT LASER VISIBLE ET INVISIBLE APRÈS OUVERTURE. ÉVITEZ TOUTE EXPOSITION DIRECTE AU RAYON LASER.
FARE SYNLIG OG USYNLIG LASERSTRÅLING, HVIS ÅBEN. UNDGÅ DIREKTE EKSPONERING FOR STRÅLEN.
VAROITUS NÄKYVÄ JA NÄKYMÄTÖN LASERSÄTEILY KUN AUA AT LAITTEEN. VALTA SUORAA KOSKETUSTA SÄTEEN.
FARA! SYNLIG OCH OSYNLIG LASERSTRÅLNING NÄR APPARATEN ÄR ÖPPEN. UNDVIK ATT UTSÄTTA DIG FÖR DIREKT STRÅLNING.
GEFAHR SICHTBARE UND UNSICHTBARE LASERSTRAHLUNG WENN OFFEN. SETZEN SIE SICH NICHT DEM LASERSTRAHL AUS.
DRW2109-A
THIS DEVICE COMPLIES WITH PART 15 OF THE FCC RULES OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS : (1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE, AND (2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED, INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRED OPERATION.
THIS CLASS B DIGITAL APPARATUS COMPLIES WITH CANADIAN ICES-003.
CET APPAREIL NUMÉRIQUE DE LA CLASSE B EST CONFORME À LA NORME NMB-003 DU CANADA.
CERTIFICATION-THIS PRODUCT COMPLIES WITH DHHS RULES 21 CFR, SUBCHAPTER J, PART 1040 AT DATE OF MANUFACTURE.
CLASS 1 LASER PRODUCT
LASER KLASSE 1
ACN 005 017 087
0 12562 62758 8
DVR-105
DVD-R/RW WRITER UNIT
PIONEER CORPORATION
4-1, MEGURO 1-CHOME, MEGURO-KU, TOKYO, 153-8654, JAPAN
MADE IN CHINA E99677
12V 0.6A
5V 1.1A
PIONEER DVR-105
Tested To Comply With FCC Standards
FOR HOME OR OFFICE USE
D33013
TÜVRheinland
DANGER
VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN. AVOID DIRECT EXPOSURE TO BEAM.
DANGER
PRÉSENCE DE RAYONNEMENT LASER VISIBLE ET INVISIBLE APRÈS OUVERTURE. ÉVITEZ TOUTE EXPOSITION DIRECTE AU RAYON LASER.
DRW2080
(DRW2080)
(DRW2120)

[Important symbols for good services]

In this manual, the symbols shown-below indicate that adjustments, settings or cleaning should be made securely.
When you find the procedures bearing any of the symbols, be sure to fulfill them:

1. Product safety

You should conform to the regulations governing the product (safety, radio and noise, and other regulations), and should keep the safety during servicing by following the safety instructions described in this manual.

2. Adjustments

To keep the original performances of the product, optimum adjustments or specification confirmation is indispensable. In accordance with the procedures or instructions described in this manual, adjustments should be performed.

3. Cleaning

For optical pickups, tape-deck heads, lenses and mirrors used in projection monitors, and other parts requiring cleaning, proper cleaning should be performed to restore their performances.

4. Shipping mode and shipping screws

To protect the product from damages or failures that may be caused during transit, the shipping mode should be set or the shipping screws should be installed before shipping out in accordance with this manual, if necessary.

5. Lubricants, glues, and replacement parts

Appropriately applying grease or glue can maintain the product performances. But improper lubrication or applying glue may lead to failures or troubles in the product. By following the instructions in this manual, be sure to apply the prescribed grease or glue to proper portions by the appropriate amount.For replacement parts or tools, the prescribed ones should be used.

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1. SPECIFICATIONS

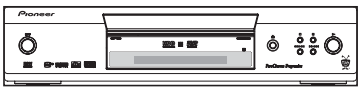
Specifications

Video In:	S-Video 4-pin mini DIN Composite Video RCA (2 pairs)
Video Out:	S-Video 4-pin mini DIN (2 pairs) Composite Video RCA (2 pairs) Component Video RCA
Audio Line In:	Stereo L/R RCA (2 pairs)
Audio Line Out:	Stereo L/R RCA (2 pairs) Digital Audio (Optical)
RF In:	F-Connector Female
RF Bypass Out:	F-Connector Female
Expansion Port:	USB
Telephone:	RJ-11 female, 2-wire
Control Change:	3.5mm mini jack sockets (IR, Serial)
Power:	AC 120V 60Hz
Power consumption:	49 Watts
Ambient (external) Operating Temperature:	5C to 35C
Operating Humidity:	85% or less
Dimensions:	420mm W x 94mm H x 391mm D
Remote Control:	39 Buttons
Storage:	ATA/IDE Hard Drive

Actual recording capacity depends on signal quality and the type of programming being recorded.

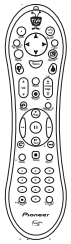
■ Accessories

1. These are the basics:



Recorder

Power Cord
(ADG7021)



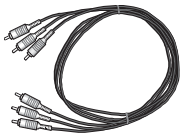
Remote Control
(VXX2870)

Phone Line Splitter
(VKX1014)

25í Phone Cord
(VDE1085)

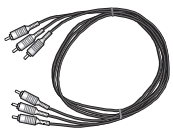
RF Coaxial cable
(VDE1086)

2. audio and video cables:



Composite A/V cable
(VDE1084)

S-Video cable (not supplied)



Component Video cable
(not supplied)

3. If you have a DIRECTV satellite receiver with a 9-pin Data connector, or a Motorola/GI DCT2000 series cable box, use this cable:

Serial (Data) Control cable*
(VDE1087)

If you canít use the Serial Control cable above with your satellite receiver or cable box, use this cable instead:

IR Control cable*
(VDX1009)

4. You may want to purchase these additional cables for some setups:

Optical Digital Audio cable

Component Video cable

S-Video cable

A

B

C

D

E

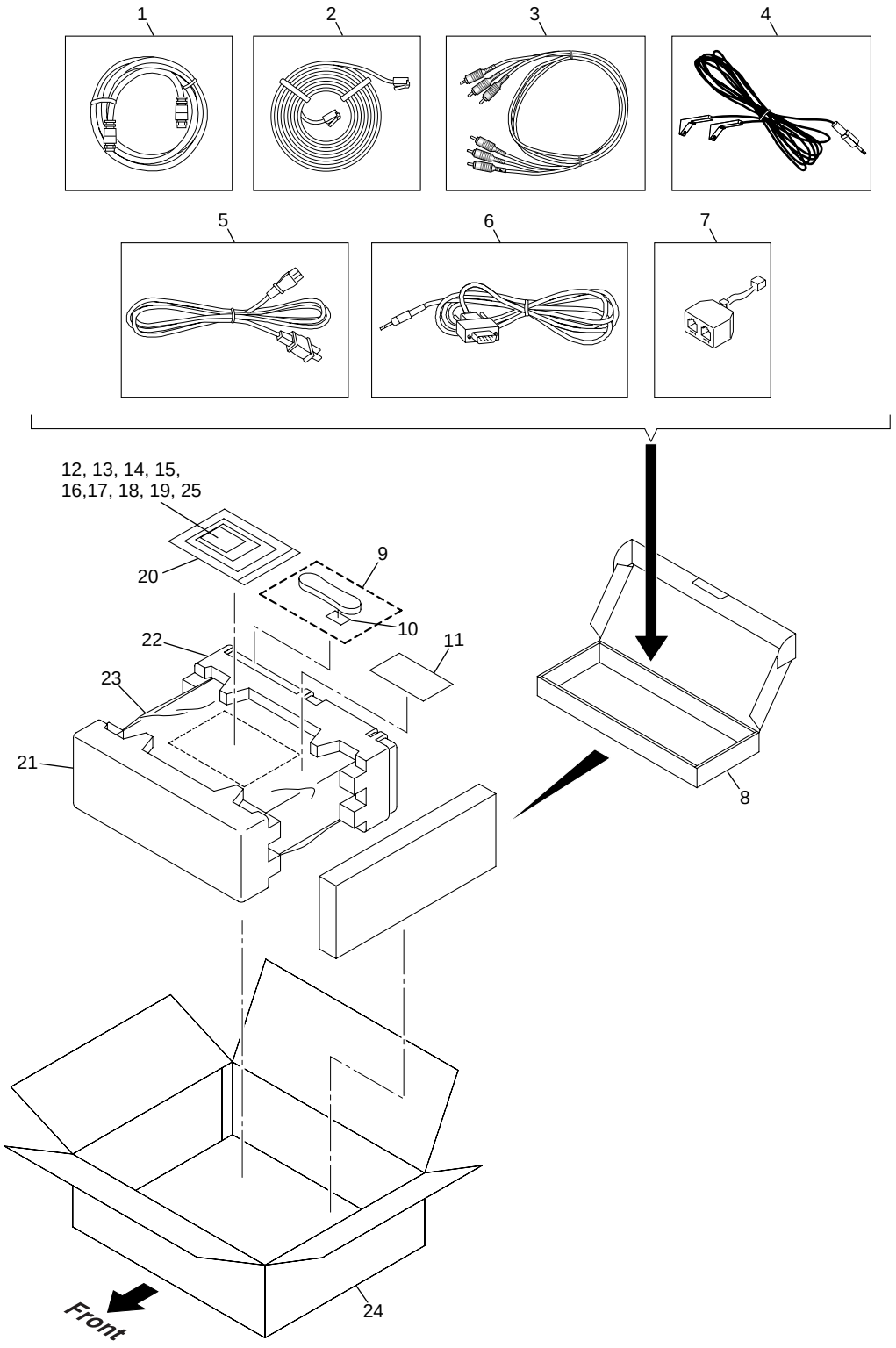
F

5 6 7 8

2. EXPLODED VIEWS AND PARTS LIST

NOTES:
- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Screws adjacent to ▼ mark on product are used for disassembly.*
- *For the applying amount of lubricants or glue, follow the instructions in this manual. (In the case of no amount instructions, apply as you think it appropriate.)*

2.1 PACKING



PACKING parts List

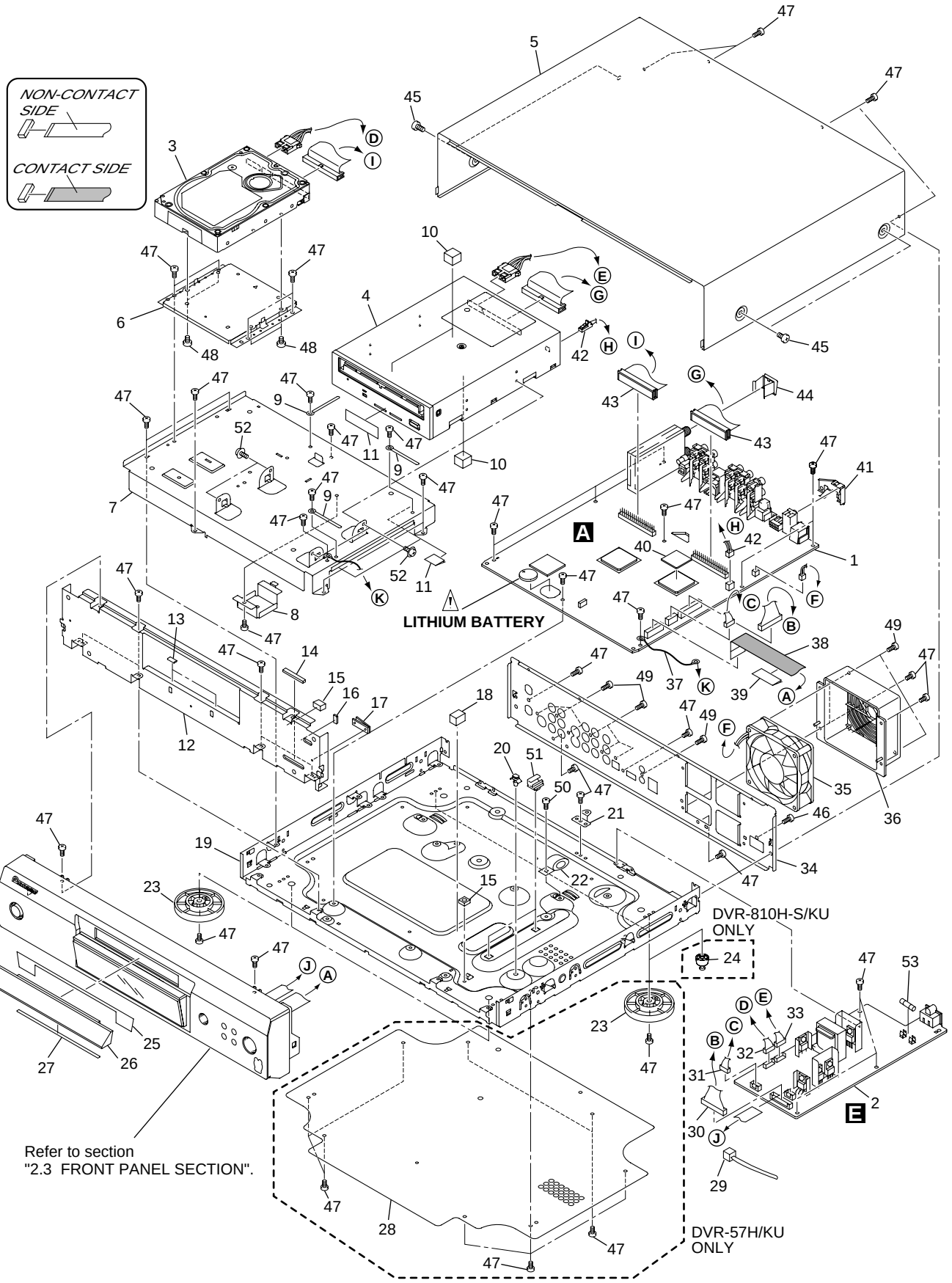
Mark	No.	Description	Part No.
	1	RF Coaxial Cable	VDE1086
	2	25i Phone Cord	VDE1085
	3	Composite A/V Cable	VDE1084
	4	IR Control Cable	VDX1009
⚠	5	Power Cord	ADG7021
	6	Serial Control Cable	VDE1087
	7	Phone Line Splitter	VKX1014
	8	Accessory Case	VHC1110
	9	Remote Control Unit	VXX2870
	10	Battery Cover	AZA7430
NSP	11	HDD Caution Label	VRM1117
NSP	12	Caution	VRM1116
NSP	13	Start Here Poster	VRM1112
NSP	14	Warranty Card PA/POC	See Contrast table(2)
NSP	15	Warranty Card EL	See Contrast table(2)
	16	Operating Instructions (English)	VRB1323
NSP	17	Installation Guide	VRM1113
NSP	18	Registration Card	VRY1132
NSP	19	Dry Cell Battery (R6P, AA)	VEM1031
NSP	20	Polyethylene Bag (0.03x230x340)	Z21-038
	21	Front Pad	VHA1344
	22	Rear Pad	VHA1345
	23	Mirror Mat	VHL1006
	24	Packing Case	See Contrast table(2)
	25	Service Level Sheet	See Contrast table(2)

(2) CONTRAST TABLE

DVR-810H-S/KU and DVR-57H/KU are constructed the same except for the following:

Mark	No.	Symbol and Description	DVR-810H-S/KU	DVR-57H/KU
NSP	14	Warranty Card PA/POC	ARY7045	Not used
NSP	15	Warranty Card EL	Not used	ARY7007
	24	Packing Case	VHG2381	VHG2382
NSP	25	Service Level Sheet	VRM1118	VRM1119

2.2 EXTERIOR SECTION



EXTERIOR SECTION parts List

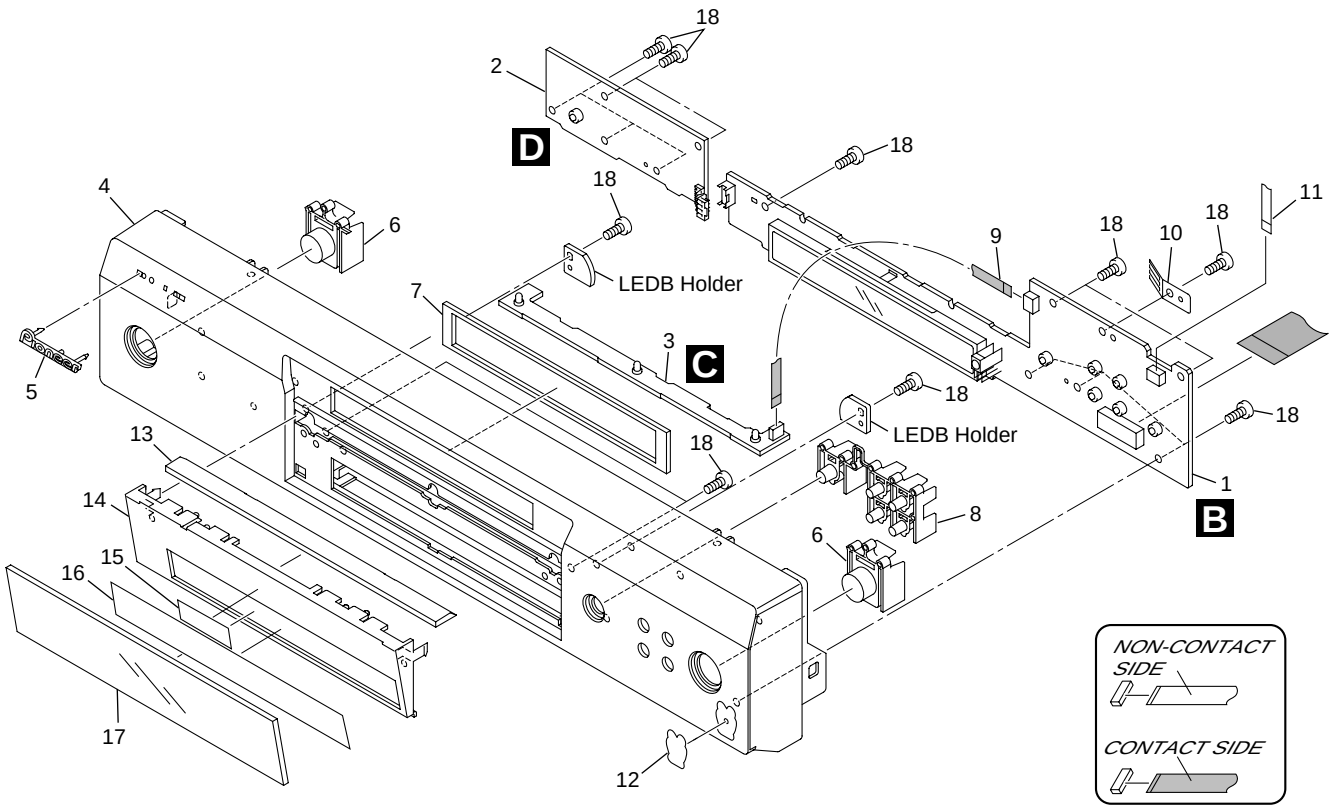
Mark	No.	Description	Part No.
	1	MAIN Assy	See Contrast table(2)
⚠	2	POWER SUPPLY Assy	VWR1372
	3	HDD	See Contrast table(2)
	4	DRIVE Assy R5	VXX2899
	5	Bonnet-S	See Contrast table(2)
NSP	6	HDD Stay	VNE2290
NSP	7	Sub Chassis	VNE2325
NSP	8	Heat Sink	VNE2292
	9	Cord Holder	RNH-184
	10	Gasket A	VEC2382
	11	Flexible Protect	VEC2325
NSP	12	Front Stay	VNE2326
	13	Gasket U	VEC2399
	14	Cushion L	VEB1364
	15	Disc Guard	VEB1363
	16	Cushion S	VEB1365
	17	Flat Clamp	VEC2401
	18	Rubber Spacer	VEB1359
NSP	19	Base Chassis	VNA2622
	20	Card Spacer A	VEC1708
NSP	21	PCB Stay	VNE2327
	22	Ferrite Core	VTH1048
	23	Insulator	VXA2424
	24	Leg Assy	See Contrast table(2)
	25	Tray Sheet L	VEC2367
	26	Tray Panel	See Contrast table(2)
	27	Tray Sheet S	VEC2404
NSP	28	Layer Plate	See Contrast table(2)
NSP	29	Binder	ZCA-BK1
⚠	30	Connector Assy (14P)	PF14PP-D20
	31	Connector Assy (5P)	PF05PP-D15
	32	Housing Assy	VKP2291
	33	Housing Assy	VKP2295
	34	Rear Panel	See Contrast table(2)
	35	DC Fan Motor	VXM1108
	36	FAN Cover	See Contrast table(2)
NSP	37	Earth Lead Wire	DE010VC0
	38	Flexible Cable (17P)	VDA1984
	39	Flexible Protect	VEC2325
	40	Sheet	VEB1362
	41	Earth Plate IR	VBK1150
	42	Housing Assy	VKP2297
	43	Housing Assy (U-ATA)	VKP2319
	44	Earth Plate TU	VBK1149
	45	Screw	See Contrast table(2)
	46	Screw	PPZ30P080FMC
	47	Screw	BBZ30P060FMC
	48	Screw	DBA1125
	49	Screw	BPZ30P080FZK
	50	Screw	IBZ30P080FCC
NSP	51	P Plate Holder	PNY-405
	52	Screw	AMZ30P060FMC
⚠	53	Fuse (FU101 : 3.15A)	VEK1074

(2) CONTRAST TABLE

DVR-810H-S/KU and DVR-57H/KU are constructed the same except for the following:

Mark	No.	Symbol and Description	DVR-810H-S/KU	DVR-57H/KU
	1	MAIN Assy	VWV1981	VWV1982
	3	HDD 80G 4R080L0	VXF1010	Not used
	3	HDD 120G 4R120L0	Not used	VXF1016
	5	Bonnet-S	VXX2891	VXX2892
	24	Leg Assy	VEC2185	Not used
	26	Tray Panel	VNK5348	VNK5354
NSP	28	Layer Plate	Not used	VNA2627
	34	Rear Panel	VNA2625	VNA2626
	36	FAN Cover	VNK5343	VNK5344
	45	Screw	BCZ40P060FNI	BCZ40P060FZK

2.3 FRONT PANEL SECTION



FRONT PANEL SECTION parts List

Mark	No.	Description	Part No.
	1	FLKY Assy	VWG2438
	2	KEYB Assy	VWG2439
	3	LEDB Assy	VWG2440
	4	Front Panel	See Contrast table(2)
	5	Pioneer Badge	See Contrast table(2)
	6	Play Key	See Contrast table(2)
	7	Drive Sheet	VEC2366
	8	Main Key	See Contrast table(2)
	9	Flexible Cable (5P)	VDA1986
	10	Earth Plate F	VBK1147
	11	Flexible Cable (5P)	VDA1985
	12	TIVO Badge	VAM1137
	13	Illumination Lens	VNK5349
	14	Sub Panel	VNK5350
	15	Hologram Label	VRW1962
	16	FL Filter	See Contrast table(2)
	17	FL Lens	See Contrast table(2)
	18	Screw	BPZ30P080FZK

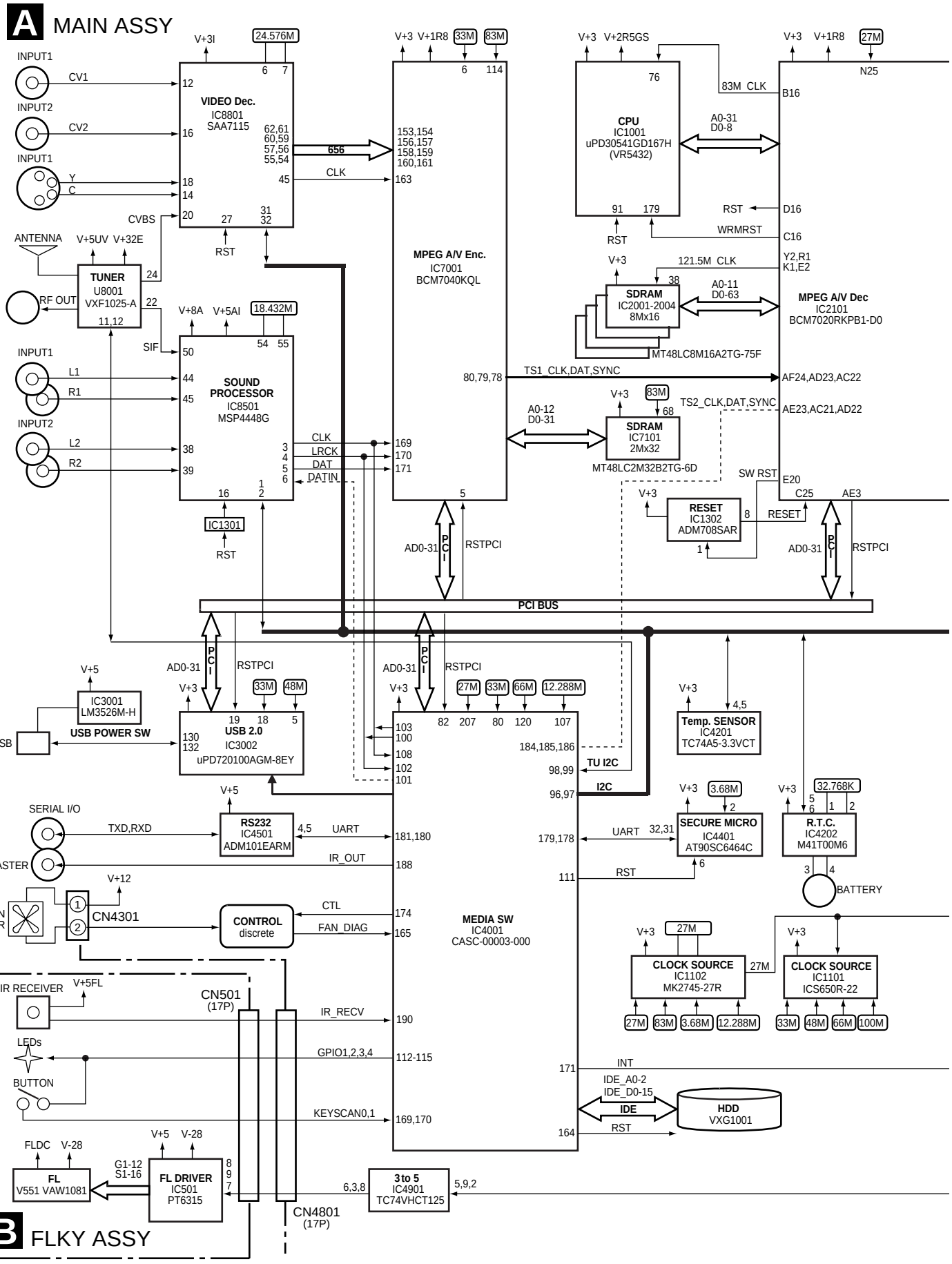
(2) CONTRAST TABLE

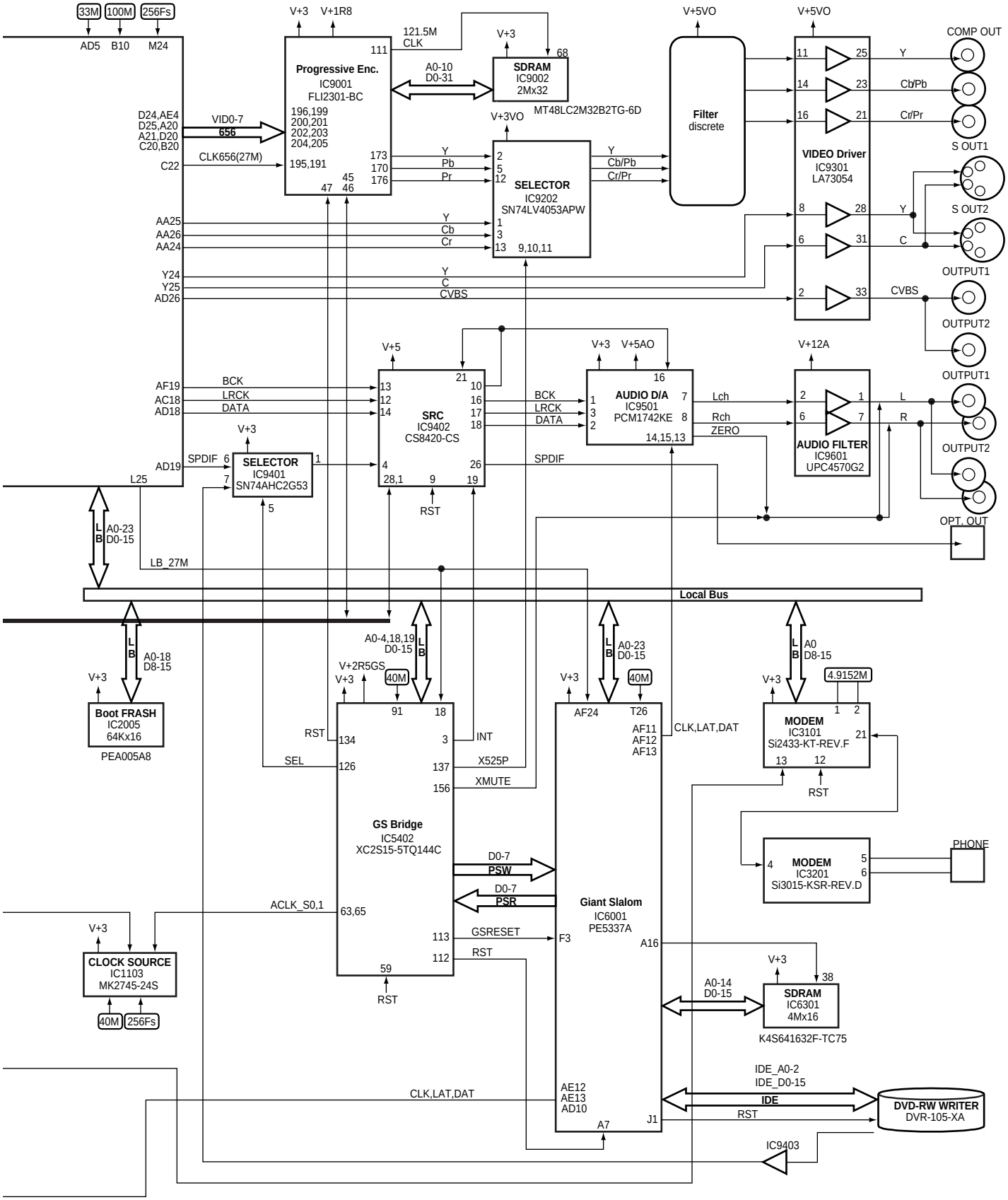
DVR-810H-S/KU and DVR-57H/KU are constructed the same except for the following:

Mark	No.	Symbol and Description	DVR-810H-S/KU	DVR-57H/KU
	4	Front Panel	VNK5346	VNK5351
	5	Pioneer Badge	VAM1124	PAN1376
	6	Play Key	VNK5347	VNK5353
	8	Main Key	VNK5345	VNK5352
	16	FL Filter	VEC2365	VEC2370
	17	FL Lens	VEC2364	VEC2369

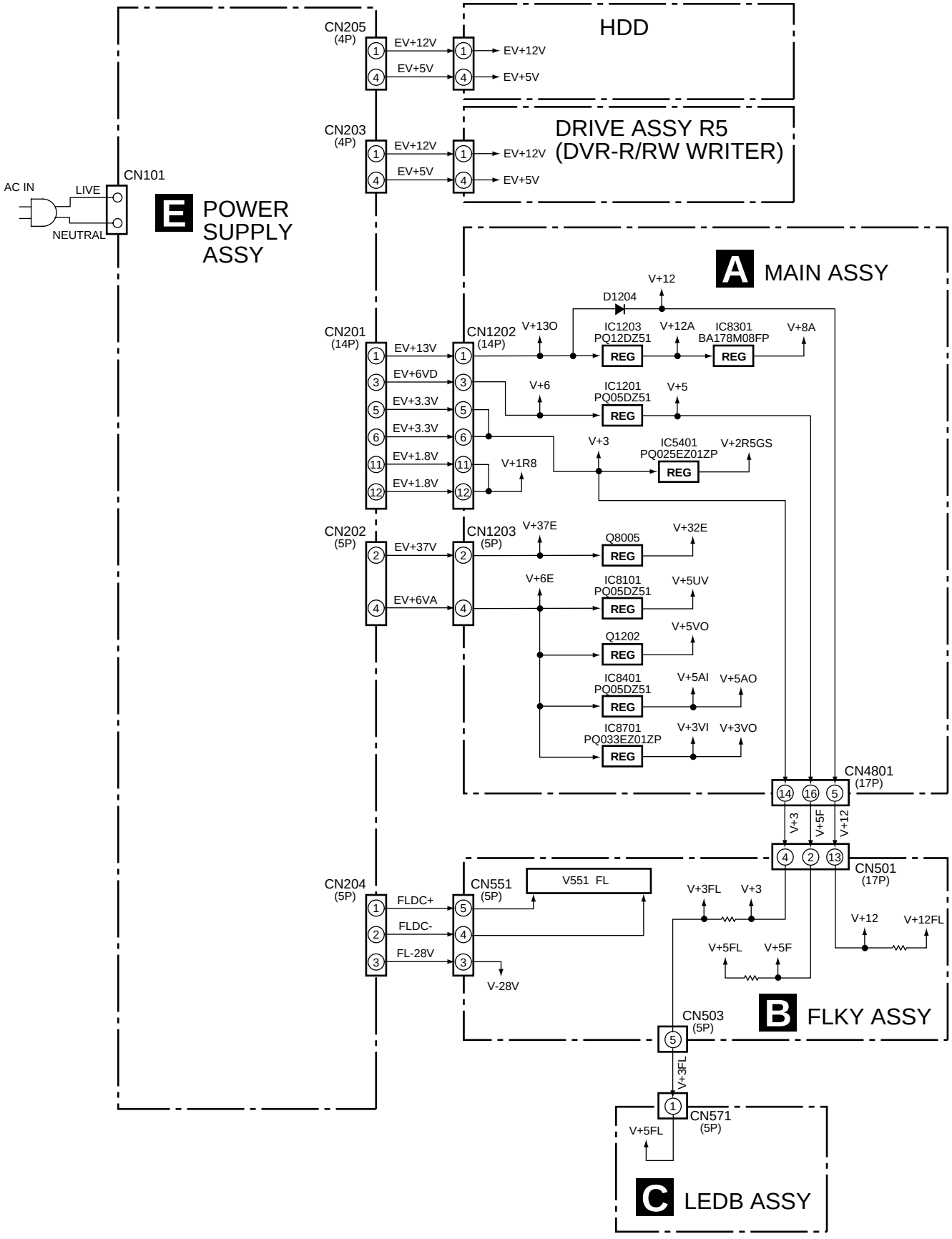
3. BLOCK DIAGRAM AND SCHEMATIC DIAGRAM

3.1 SYSTEM BLOCK DIAGRAM SECTION




33M
100M
256Fs
AD5 B10 M24
V+3 V+1R8
121.5M CLK
Progressive Enc.
IC9001
FLI2301-BC
111
196,199
200,201
202,203
204,205
195,191
45 46
47
A0-10
D0-31
V+3
SDRAM
IC9002
2Mx32
68
MT48LC2M32B2TG-6D
V+5VO
V+5VO
Filter
discrete
COMP OUT
Y
Cb/Pb
Cr/Pr
S OUT1
S OUT2
OUTPUT1
OUTPUT2
VIDEO Driver
IC9301
LA73054
CVBS
D24,AE4
D25,A20
A21,D20
C20,B20
VID0-7
656
C22
CLK656(27M)
173
170
176
Y
Pb
Pr
V+3VO
SELECTOR
IC9202
SN74LV4053APW
9,10,11
Y
Cb/Pb
Cr/Pr
AA25
AA26
AA24
Y
Cb
Cr
Y24
Y25
AD26
Y
C
CVBS
V+5
SRC
IC9402
CS8420-CS
21
28,1
9
19
RST
V+3 V+5AO
AUDIO D/A
IC9501
PCM1742KE
16
14,15,13
BCK
LRCK
DATA
Lch
Rch
ZERO
V+12A
AUDIO FILTER
IC9601
UPC4570G2
L
R
AF19
AC18
AD18
BCK
LRCK
DATA
AD19
SPDIF
V+3
SELECTOR
IC9401
SN74AHC2G53
L25
SPDIF
OPT. OUT
LB
A0-23
D0-15
LB_27M
Local Bus
LB
A0-18
D8-15
V+3
Boot FRASH
IC2005
64Kx16
PEA005A8
A0-4,18,19
D0-15
V+2R5GS
40M
91
18
RST
SEL
134
126
INT
X525P
XMUTE
3
137
156
GS Bridge
IC5402
XC2S15-5TQ144C
ACLK_S0,1
63,65
113
112
59
GSRESET
RST
RST
D0-7
PSW
D0-7
PSR
LB
A0-23
D0-15
V+3
40M
AF24
T26
AF11
AF12
AF13
CLK,LAT,DAT
Giant Slalom
IC6001
PE5337A
F3
A16
LB
A0
D8-15
V+3
4.9152M
MODEM
IC3101
Si2433-KT-REV.F
1 2
21
13 12
RST
PHONE
MODEM
IC3201
Si3015-KSR-REV.D
4
5
6
V+3
CLOCK SOURCE
IC1103
MK2745-24S
40M
256Fs
A0-14
D0-15
V+3
38
SDRAM
IC6301
4Mx16
K4S641632F-TC75
IDE_A0-2
IDE_D0-15
IDE
RST
DVD-RW WRITER
DVR-105-XA
CLK,LAT,DAT
AE12
AE13
AD10
A7
J1
IC9403

3.2 POWER SUPPLY SECTION



A

B

C

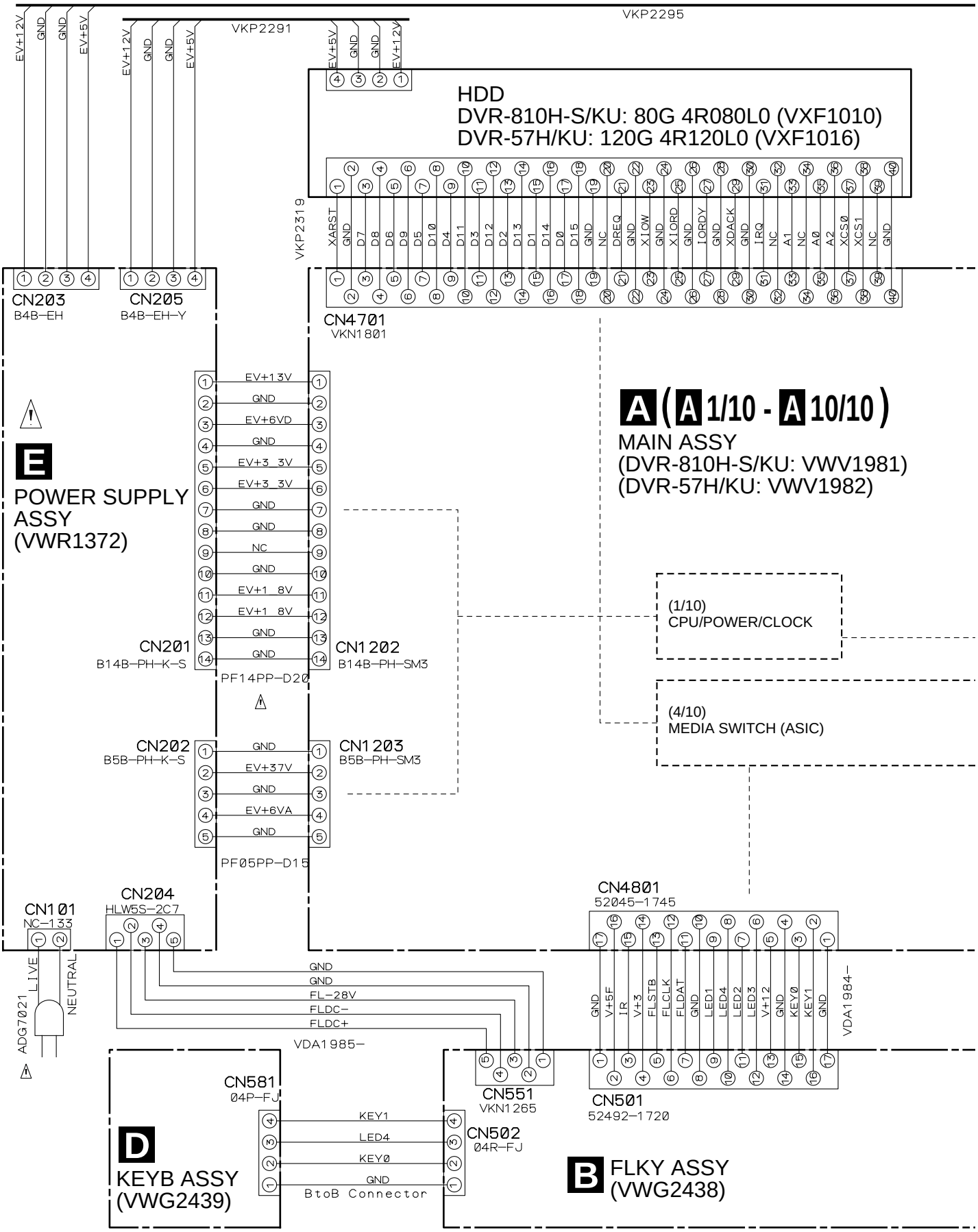
D

E

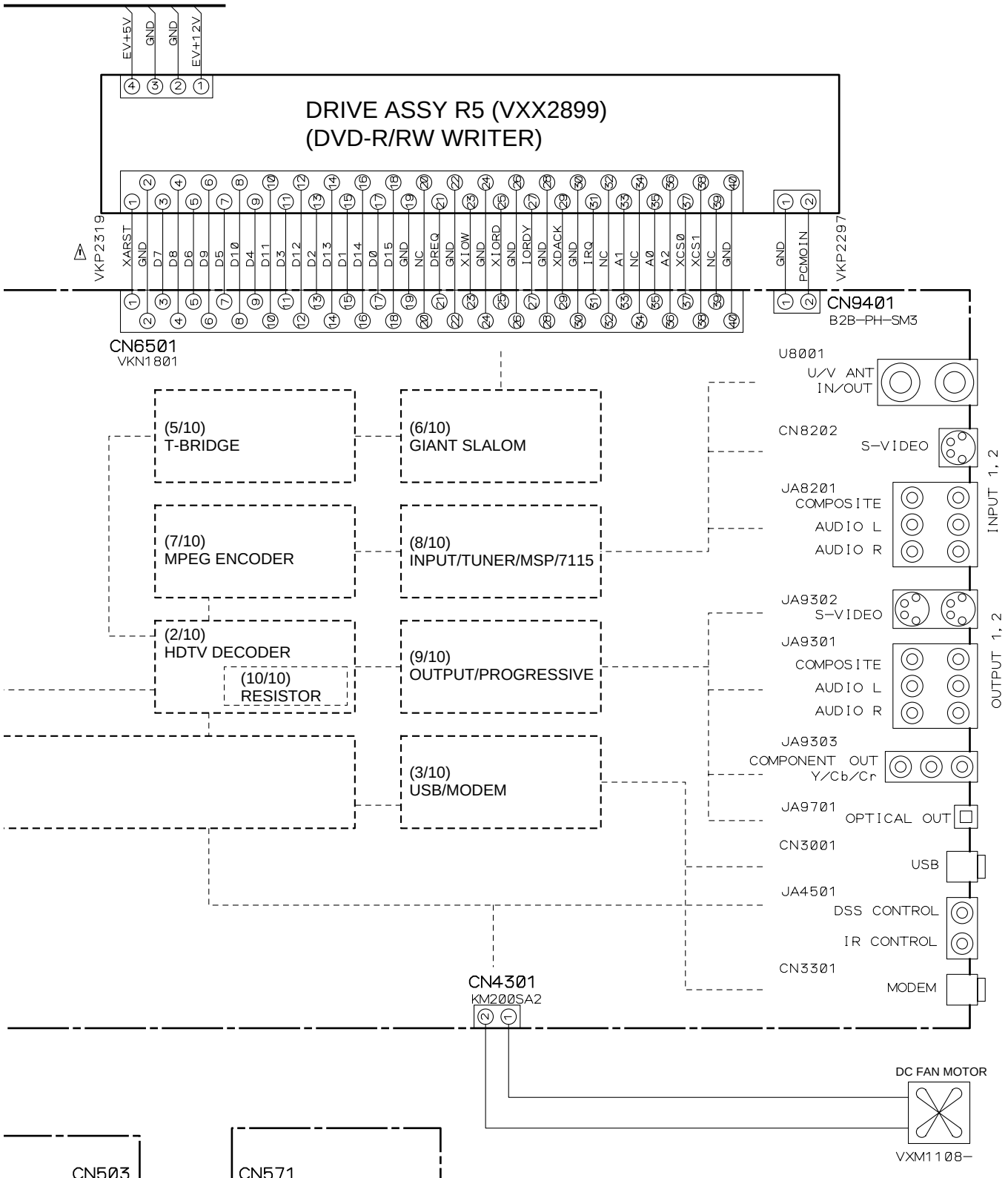
F

5 6 7 8

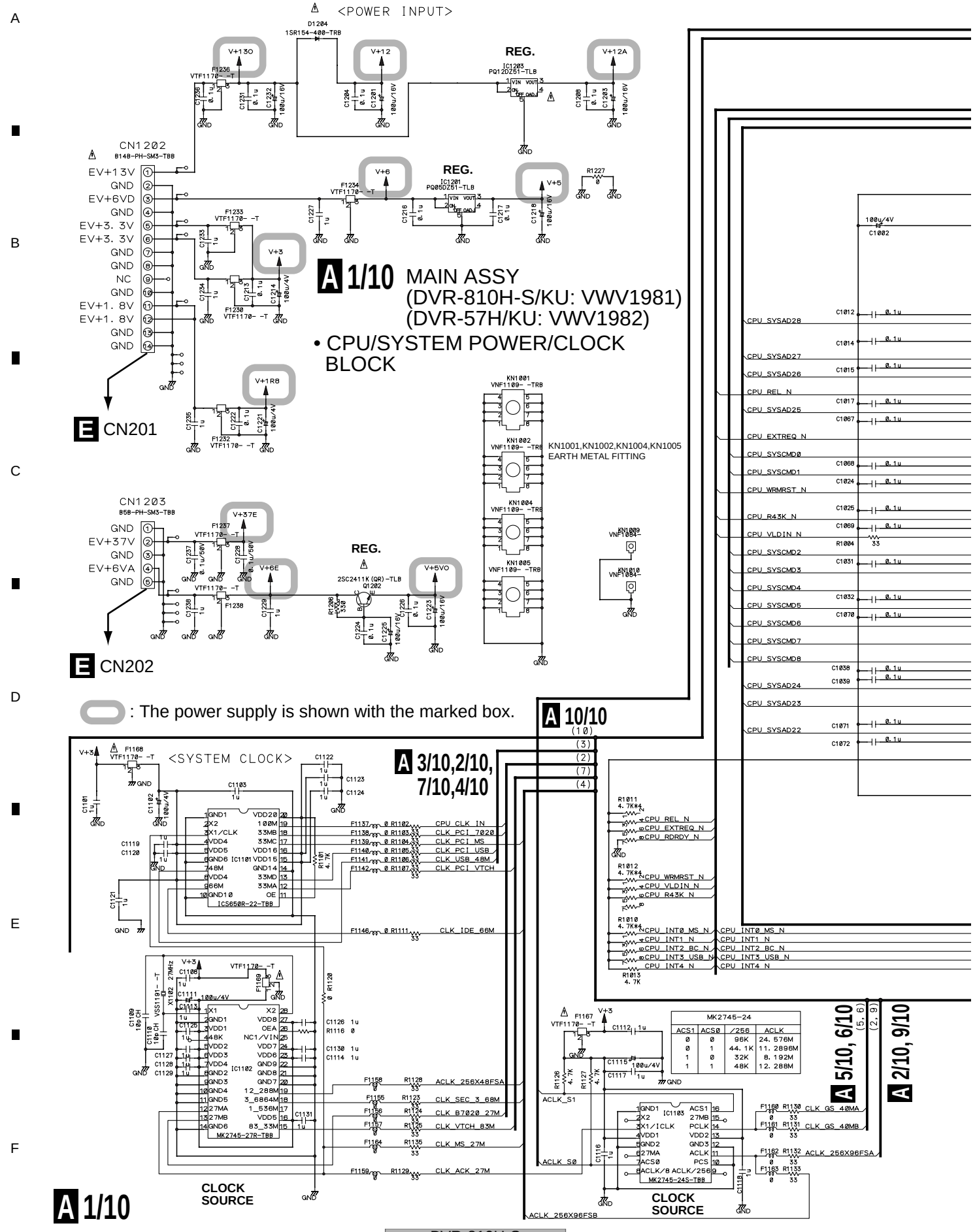
3.3 OVERALL WIRING DIAGRAM

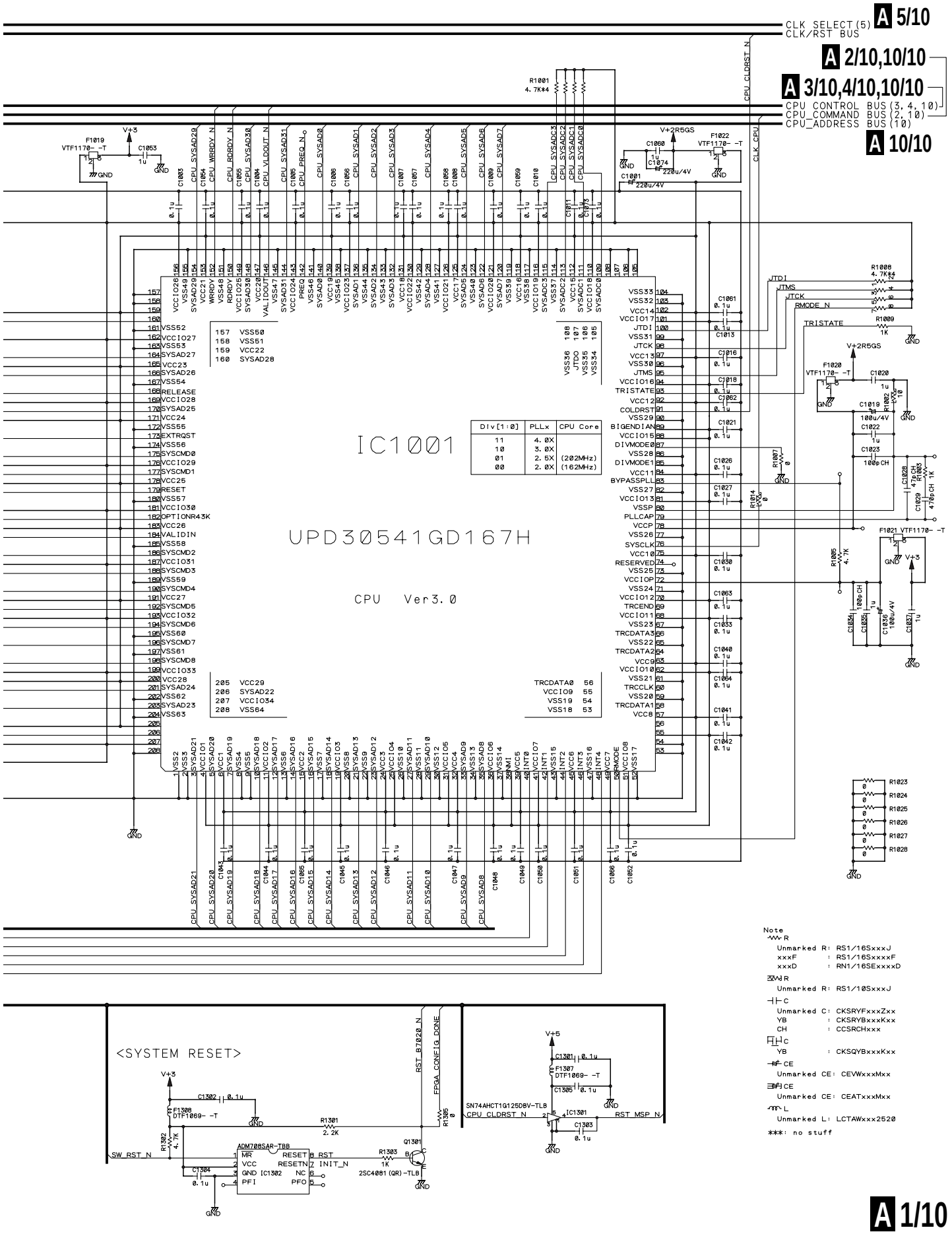


Note : When ordering service parts, be sure to refer to "EXPLODED VIEWS and PARTS LIST" or "PCB PARTS LIST".

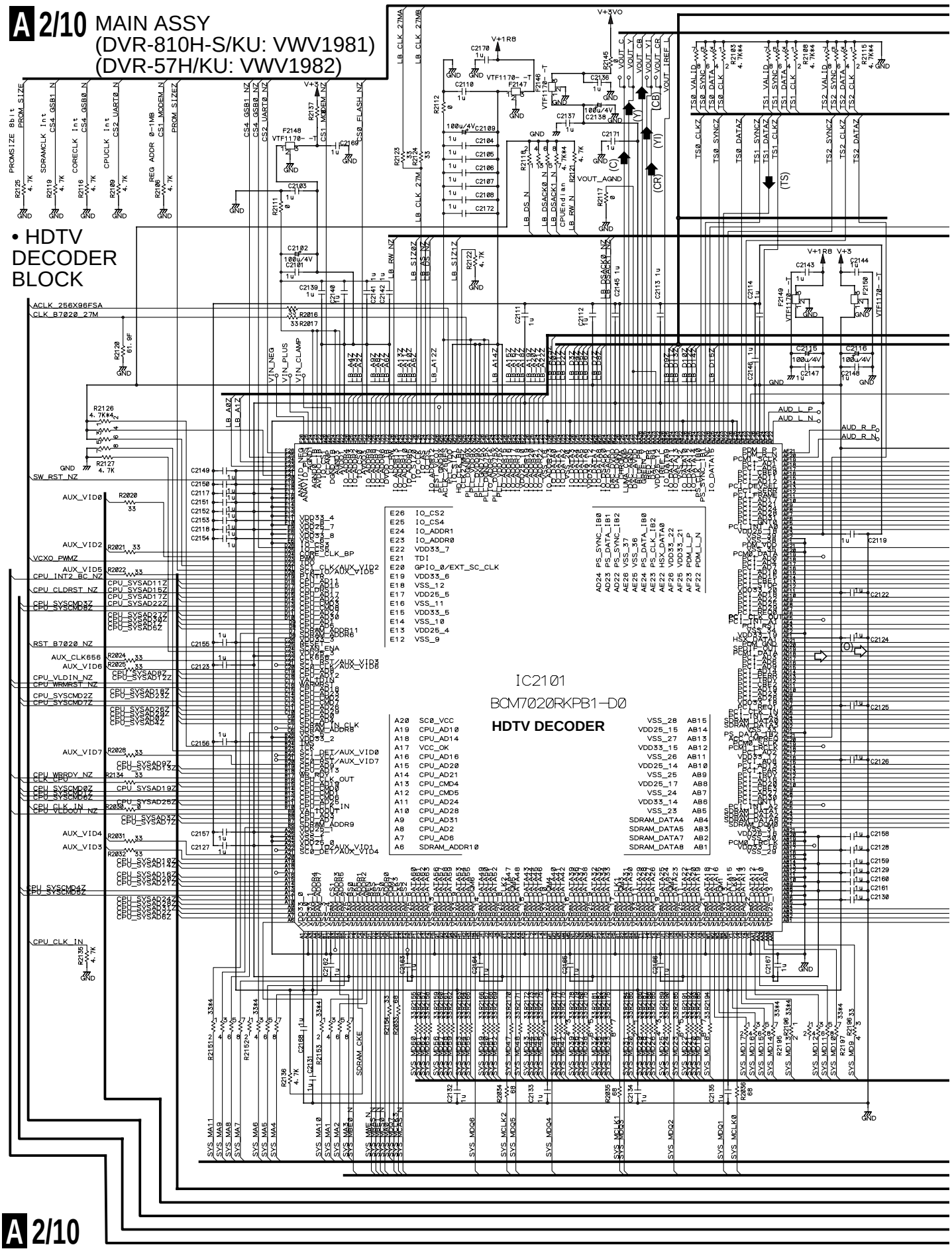


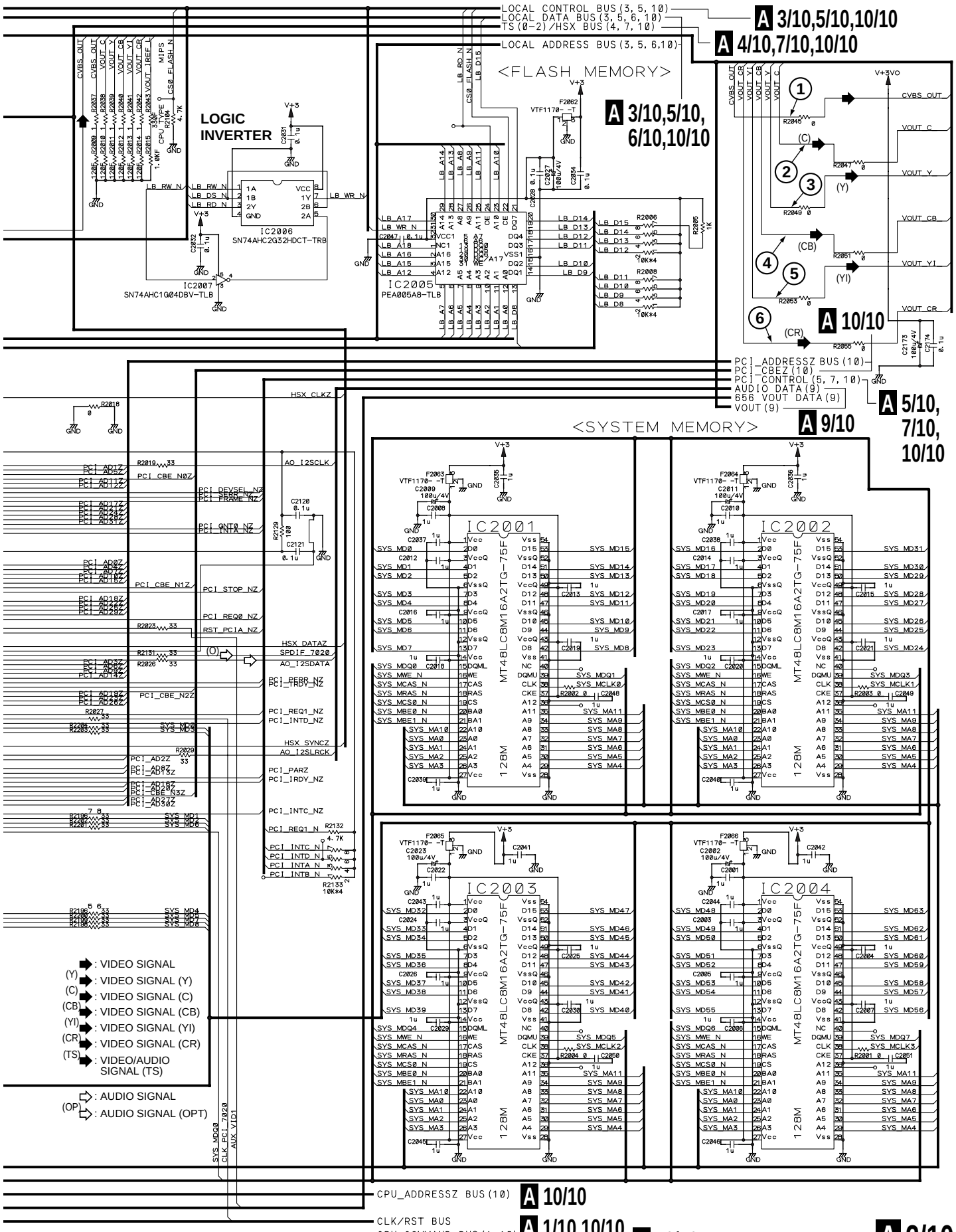
3.4 MAIN ASSY (1/10)



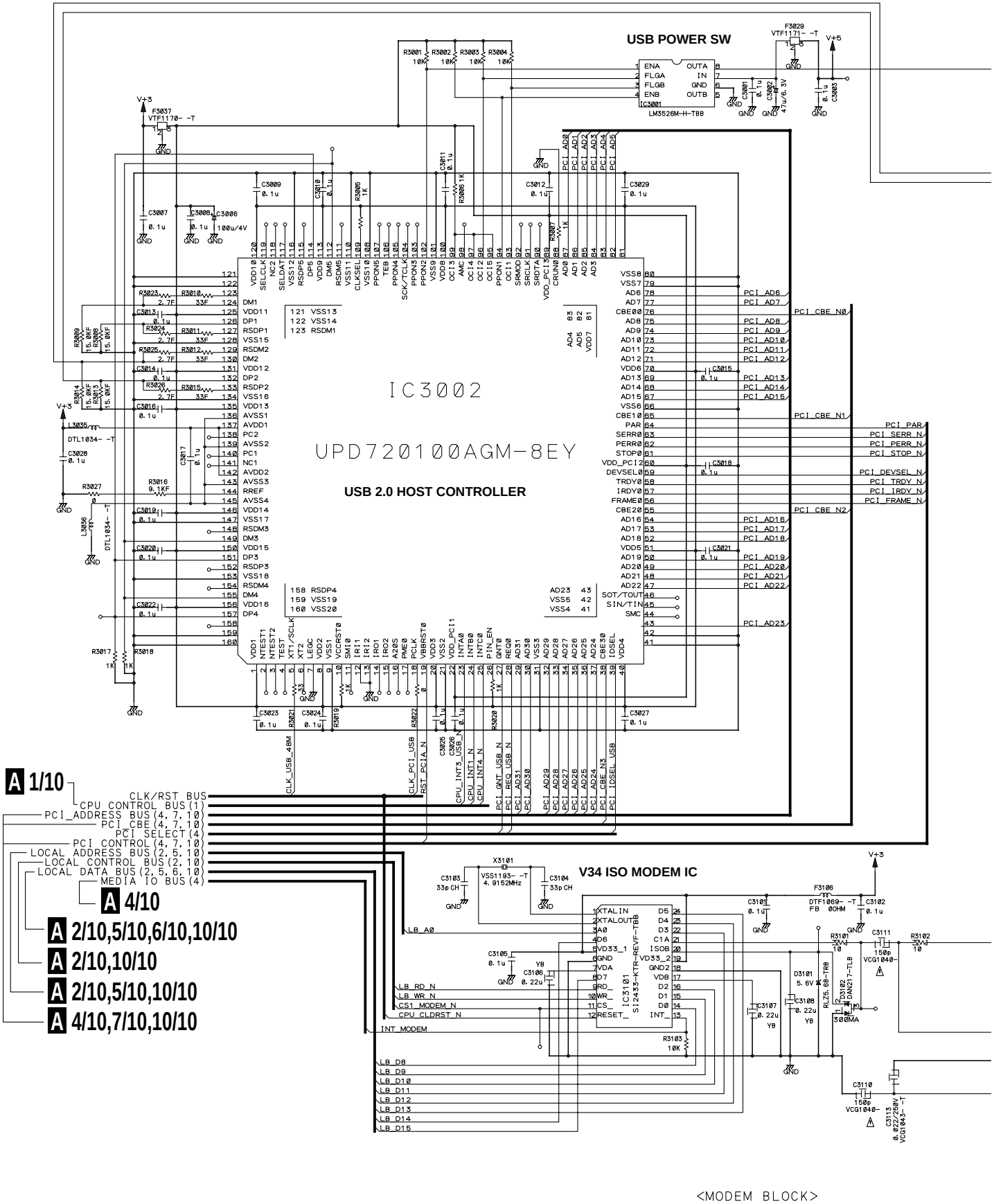

A 5/10
CLK SELECT(5)
CLK/RST BUS
A 2/10,10/10
A 3/10,4/10,10/10
CPU CONTROL BUS(3,4,10)
CPU_COMMAND BUS(2,10)
CPU_ADDRESS BUS(10)
A 10/10
IC1001
UPD30541GD167H
CPU Ver3.0
<SYSTEM RESET>
Note
Unmarked R: RS1/16Sxxx J
xxxF : RS1/16Sxxxx F
xxxD : RN1/16SExxxx D
Unmarked R: RS1/10Sxxx J
Unmarked C: CKSRYFxxxZxx
YB : CKSRYBxxxKxx
CH : CCSRCHxxx
YB : CKSQYBxxxKxx
Unmarked CE: CEVWxxxMxx
Unmarked CE: CEATxxxMxx
Unmarked L: LCTAWxxx2520
***: no stuff
A 1/10

3.5 MAIN ASSY (2/10)

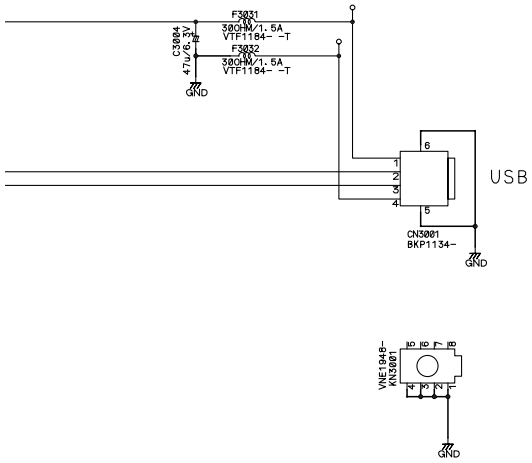


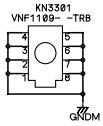

LOCAL CONTROL BUS(3, 5, 10)
LOCAL DATA BUS(3, 5, 6, 10)
TS(0-2)/HSX BUS(4, 7, 10)
LOCAL ADDRESS BUS(3, 5, 6,10)
A 3/10,5/10,10/10
A 4/10,7/10,10/10
<FLASH MEMORY>
A 3/10,5/10, 6/10,10/10
LOGIC INVERTER
IC2006 SN74AHC2G32HDCT-TRB
IC2007 SN74AHC1G04DBV-TLB
IC2005 PEA005A8-TLB
A 10/10
PCI_ADDRESSZ BUS(10)
PCI_CBEZ(10)
PCI_CONTROL(5, 7, 10)
AUDIO DATA(9)
656 VOUT DATA(9)
VOUT(9)
A 5/10, 7/10, 10/10
<SYSTEM MEMORY>
A 9/10
IC2001
IC2002
IC2003
IC2004
MT48LC8M16A2TG-75F
128M
: VIDEO SIGNAL
(Y) : VIDEO SIGNAL (Y)
(C) : VIDEO SIGNAL (C)
(CB) : VIDEO SIGNAL (CB)
(YI) : VIDEO SIGNAL (YI)
(CR) : VIDEO SIGNAL (CR)
(TS) : VIDEO/AUDIO SIGNAL (TS)
: AUDIO SIGNAL
(OP) : AUDIO SIGNAL (OPT)
CPU_ADDRESSZ BUS(10)
A 10/10
CLK/RST BUS
CPU_COMMAND BUS(1, 10)
A 1/10,10/10
CPU CONTROLZ BUS(10)
A 10/10
A 2/10

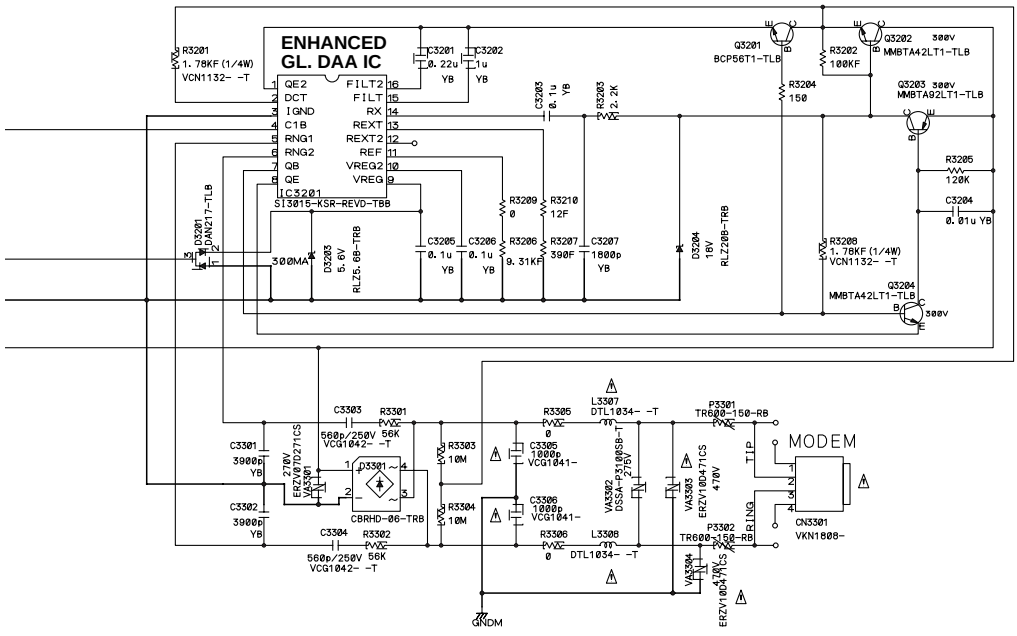
3.6 MAIN ASSY (3/10)



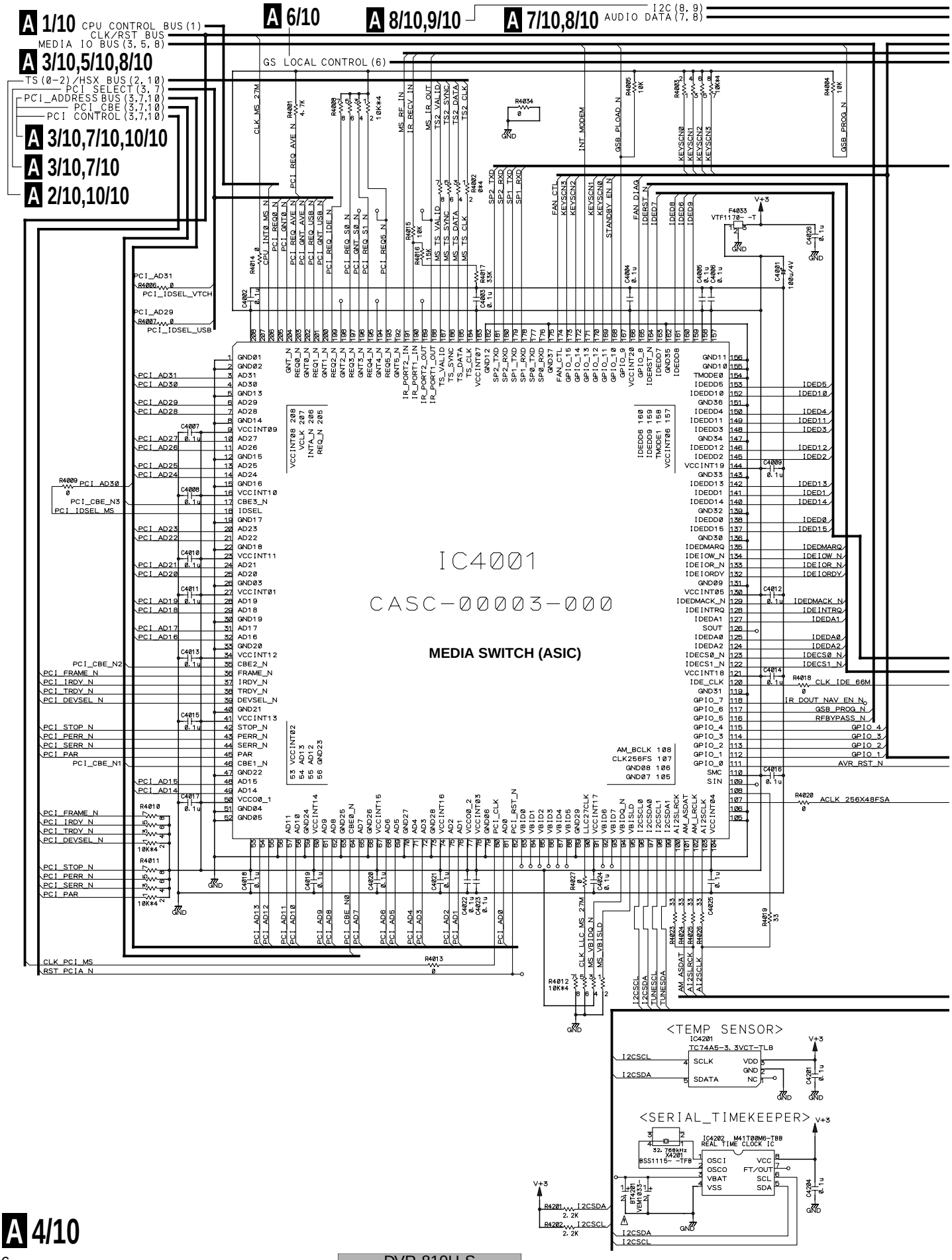
A 3/10 MAIN ASSY
(DVR-810H-S/KU: VWV1981)
(DVR-57H/KU: VWV1982)
• USB/MODEM BLOCK

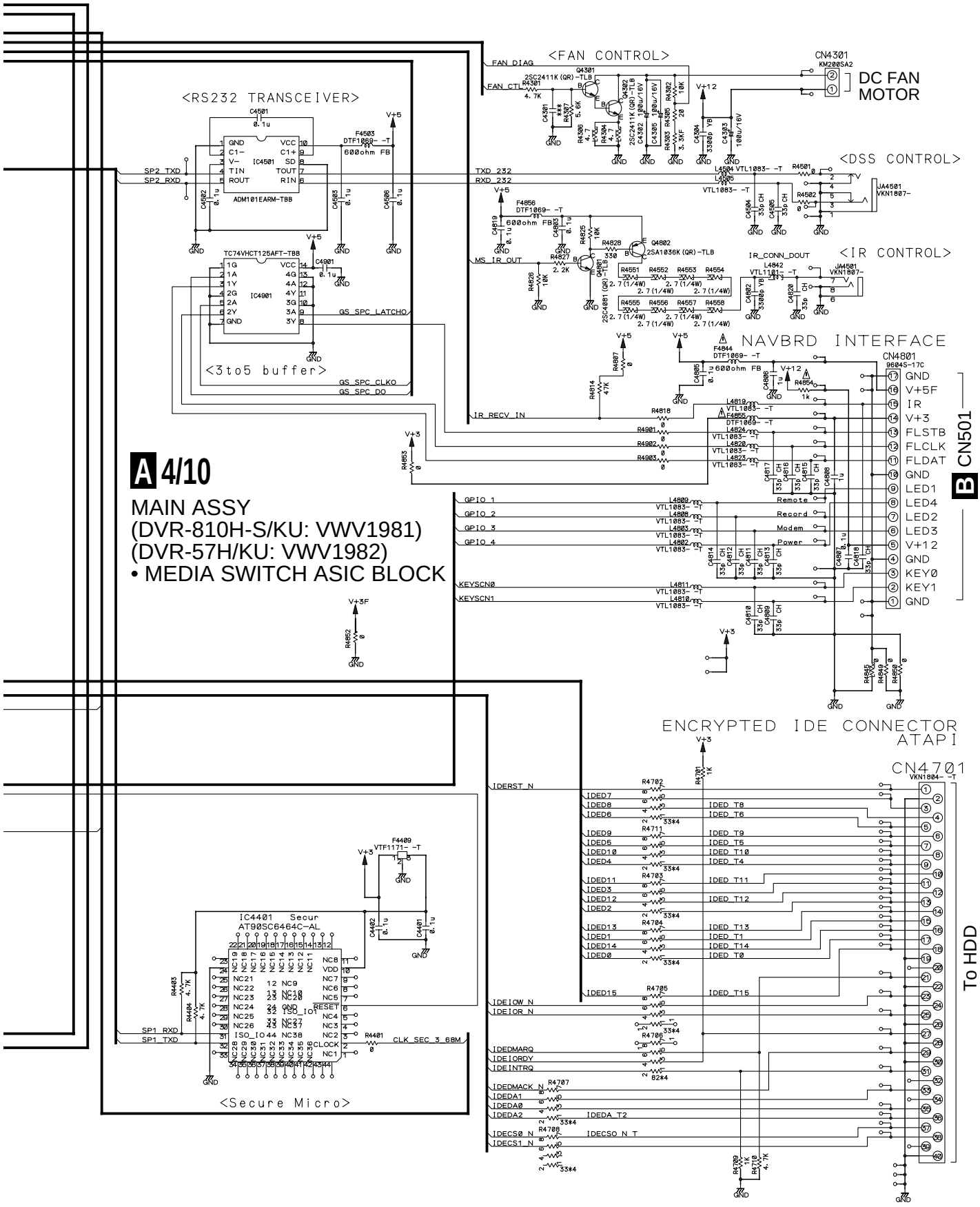






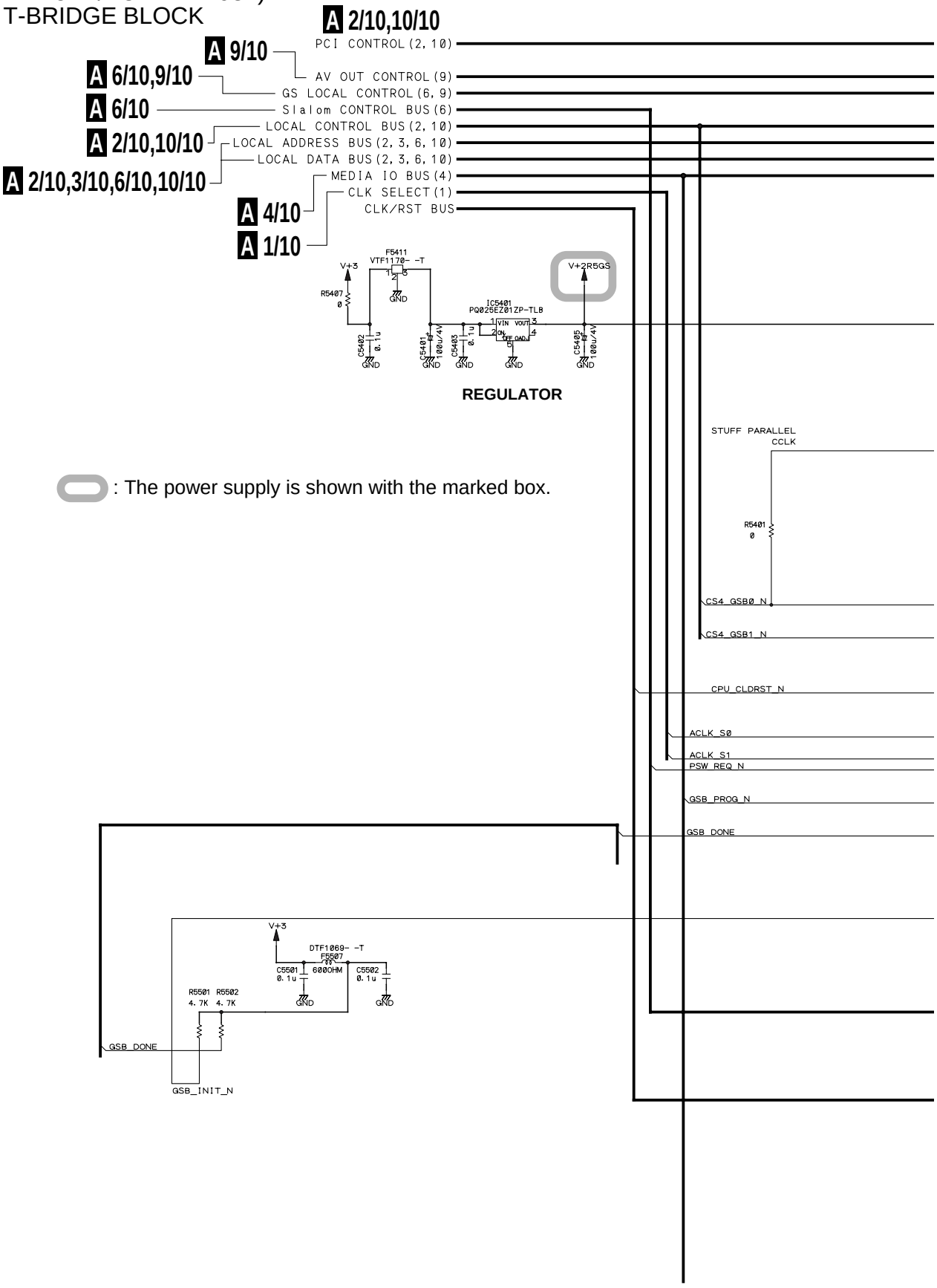
3.7 MAIN ASSY (4/10)




<FAN CONTROL>
DC FAN MOTOR
<RS232 TRANSCEIVER>
<DSS CONTROL>
<IR CONTROL>
<3to5 buffer>
NAVBRD INTERFACE
A 4/10
MAIN ASSY
(DVR-810H-S/KU: VWV1981)
(DVR-57H/KU: VWV1982)
• MEDIA SWITCH ASIC BLOCK
B CN501
ENCRYPTED IDE CONNECTOR
ATAPI
CN4701
To HDD
<Secure Micro>
A 4/10

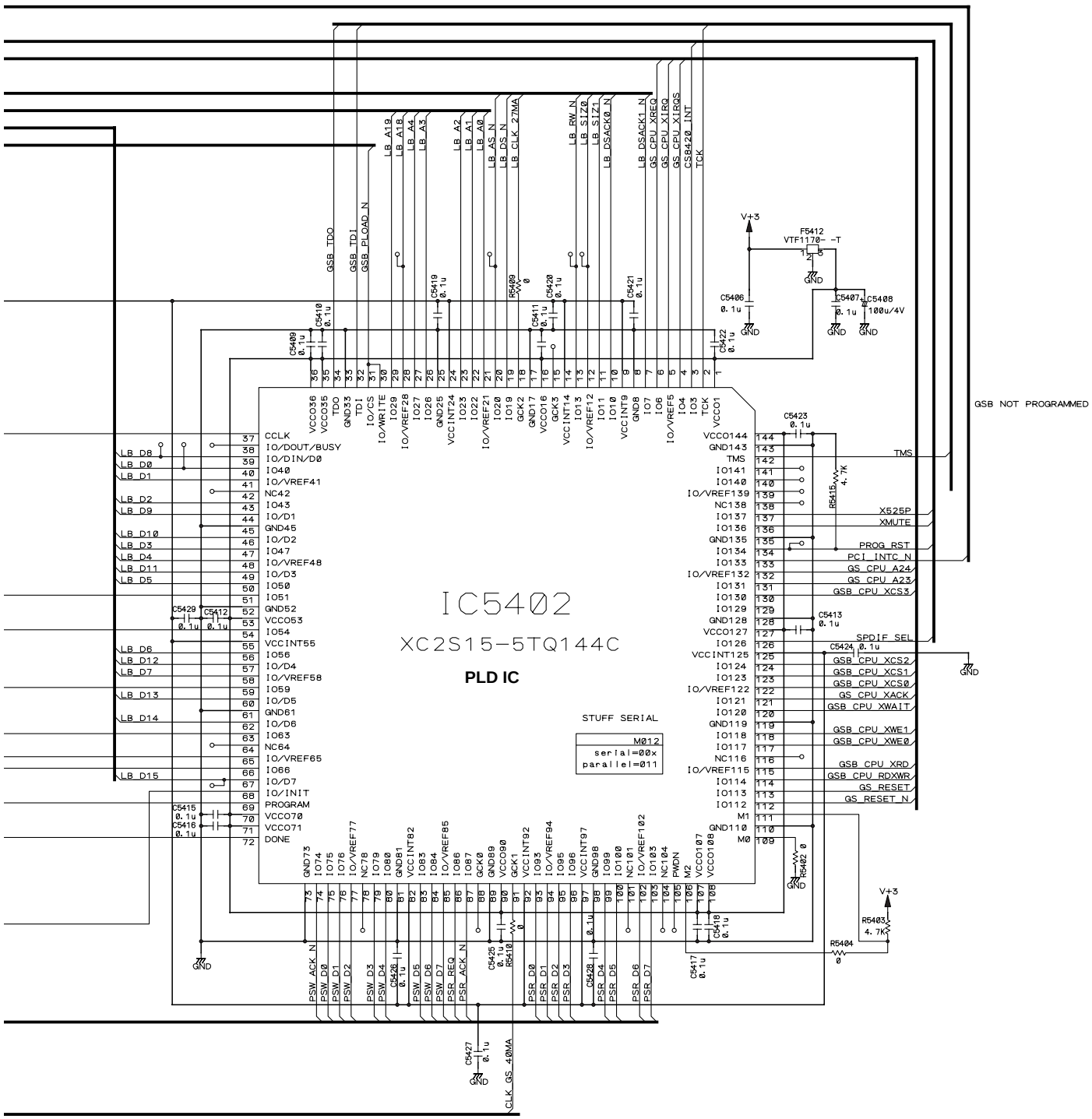
3.8 MAIN ASSY (5/10)

A 5/10 MAIN ASSY
(DVR-810H-S/KU: VWV1981)
(DVR-57H/KU: VWV1982)
• T-BRIDGE BLOCK

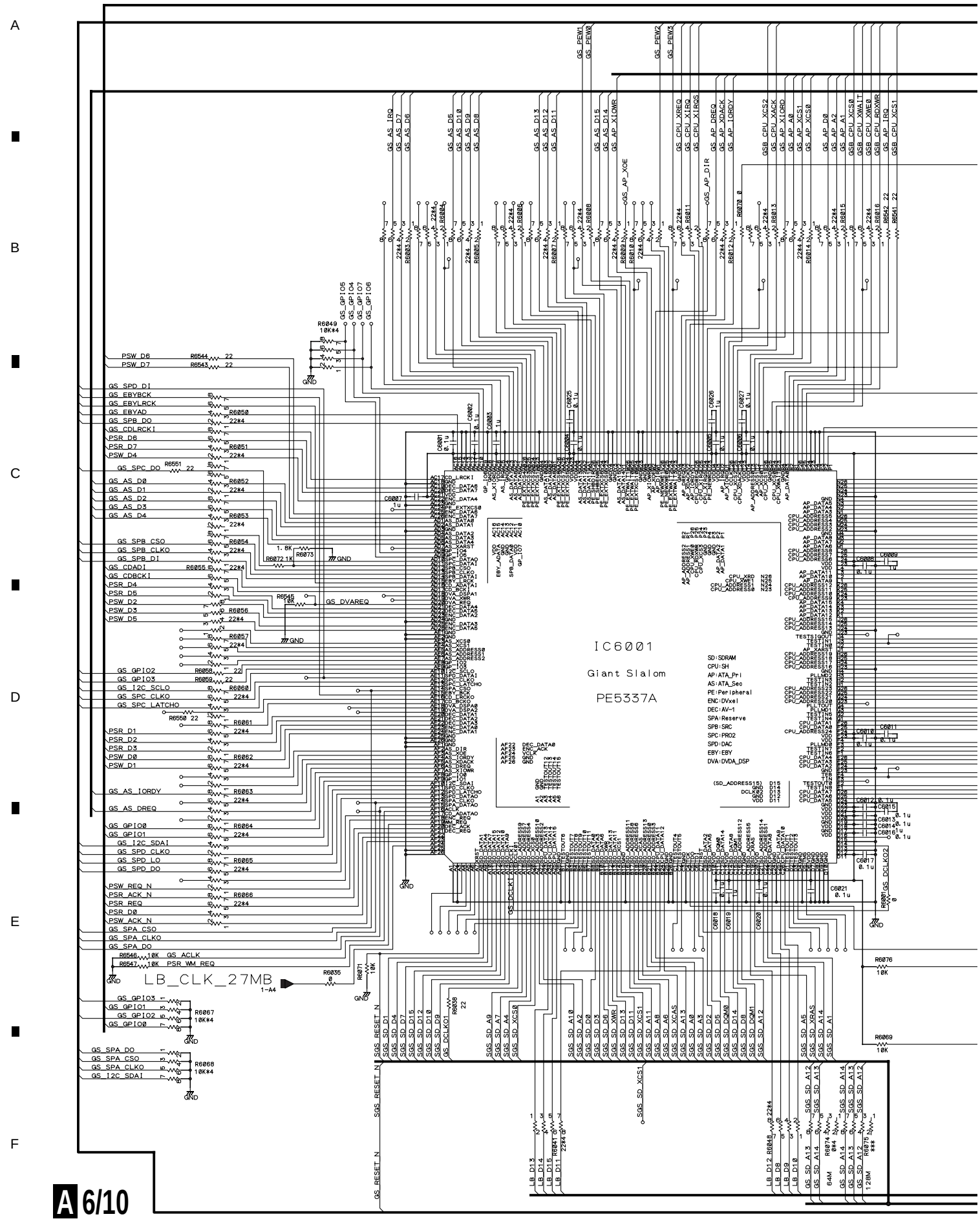


: The power supply is shown with the marked box.

A 5/10


IC5402
XC2S15-5TQ144C
PLD IC
STUFF SERIAL
M012
serial=00x
parallel=011
GSB NOT PROGRAMMED
F5412
VTF1170- -T
V+3
GND
CCLK
IO/DOUT/BUSY
IO/DIN/D0
IO40
IO/VREF41
NC42
IO43
IO/D1
GND45
IO/D2
IO47
IO/VREF48
IO/D3
IO50
IO51
GND52
VCCO53
IO54
VCCINT55
IO56
IO/D4
IO/VREF58
IO59
IO/D5
GND61
IO/D6
IO63
NC64
IO/VREF65
IO66
IO/D7
IO/INIT
PROGRAM
VCCO70
VCCO71
DONE
VCCO144
GND143
TMS
IO141
IO140
IO/VREF139
NC138
IO137
IO136
GND135
IO134
IO133
IO/VREF132
IO131
IO130
IO129
GND128
VCCO127
IO126
VCCINT125
IO124
IO123
IO/VREF122
IO121
IO120
GND119
IO118
IO117
NC116
IO/VREF115
IO114
IO113
IO112
M1
GND110
M0
VCCO107
VCCO108
M2
PWDN
NC104
IO103
IO/VREF102
NC101
IO100
IO99
GND98
VCCINT97
IO96
IO95
IO/VREF94
IO93
VCCINT92
GCK1
VCCO90
GND89
IO87
GCK0
IO86
IO/VREF85
IO84
IO83
VCCINT82
GND81
IO80
IO79
NC78
IO/VREF77
IO76
IO75
IO74
GND73
IO/VREF68
IO67
IO66
IO65
IO64
IO63
IO62
IO61
IO60
IO59
IO58
IO57
IO56
IO55
IO54
IO53
IO52
IO51
IO50
IO49
IO48
IO47
IO46
IO45
IO44
IO43
IO42
IO41
IO40
IO39
IO38
IO37
VCCO36
VCCO35
TDO
GND33
TDI
IO/CS
IO/WRITE
IO29
IO/VREF28
IO27
IO26
GND25
VCCINT24
IO23
IO22
IO/VREF21
IO20
IO19
GCK2
GND17
VCCO16
GCK3
VCCINT14
IO13
IO/VREF12
IO11
IO10
VCCINT9
GND8
IO7
IO6
IO/VREF5
IO4
IO3
TCK
VCCO1
LB_D8
LB_D0
LB_D1
LB_D2
LB_D9
LB_D10
LB_D3
LB_D4
LB_D11
LB_D5
LB_D6
LB_D12
LB_D7
LB_D13
LB_D14
LB_D15
LB_A19
LB_A18
LB_A4
LB_A3
LB_A2
LB_A1
LB_A0
LB_AS_N
LB_DS_N
LB_CLK_27MA
LB_RW_N
LB_SIZ0
LB_SIZ1
LB_DSACK0_N
LB_DSACK1_N
GS_CPU_XREQ
GS_CPU_XIRQ
GS_CPU_XIRQS
CS8420_INT
TCK
GSB_TDO
GSB_TDI
GSB_PLOAD_N
TMS
X525P
XMUTE
PROG_RST
PCI_INTC_N
GS_CPU_A24
GS_CPU_A23
GSB_CPU_XCS3
SPDIF_SEL
GSB_CPU_XCS2
GSB_CPU_XCS1
GSB_CPU_XCS0
GS_CPU_XACK
GSB_CPU_XWAIT
GSB_CPU_XWE1
GSB_CPU_XWE0
GSB_CPU_XRD
GSB_CPU_RDXWR
GS_RESET
GS_RESET_N
PSW_ACK_N
PSW_D0
PSW_D1
PSW_D2
PSW_D3
PSW_D4
PSW_D5
PSW_D6
PSW_D7
PSR_REQ
PSR_ACK_N
PSR_D0
PSR_D1
PSR_D2
PSR_D3
PSR_D4
PSR_D5
PSR_D6
PSR_D7
CLK_GS_40MA
C5406 0.1u
C5407 0.1u
C5408 100u/4V
C5409 0.1u
C5410 0.1u
C5411 0.1u
C5412 0.1u
C5413 0.1u
C5415 0.1u
C5416 0.1u
C5417 0.1u
C5418 0.1u
C5419 0.1u
C5420 0.1u
C5421 0.1u
C5422 0.1u
C5423 0.1u
C5424 0.1u
C5425 0.1u
C5426 0.1u
C5427 0.1u
C5428 0.1u
C5429 0.1u
R5403 4.7K
R5404 0
R5405 4.7K
R5409 0
R5410 0
R5411 0
R5412 0

3.9 MAIN ASSY (6/10)

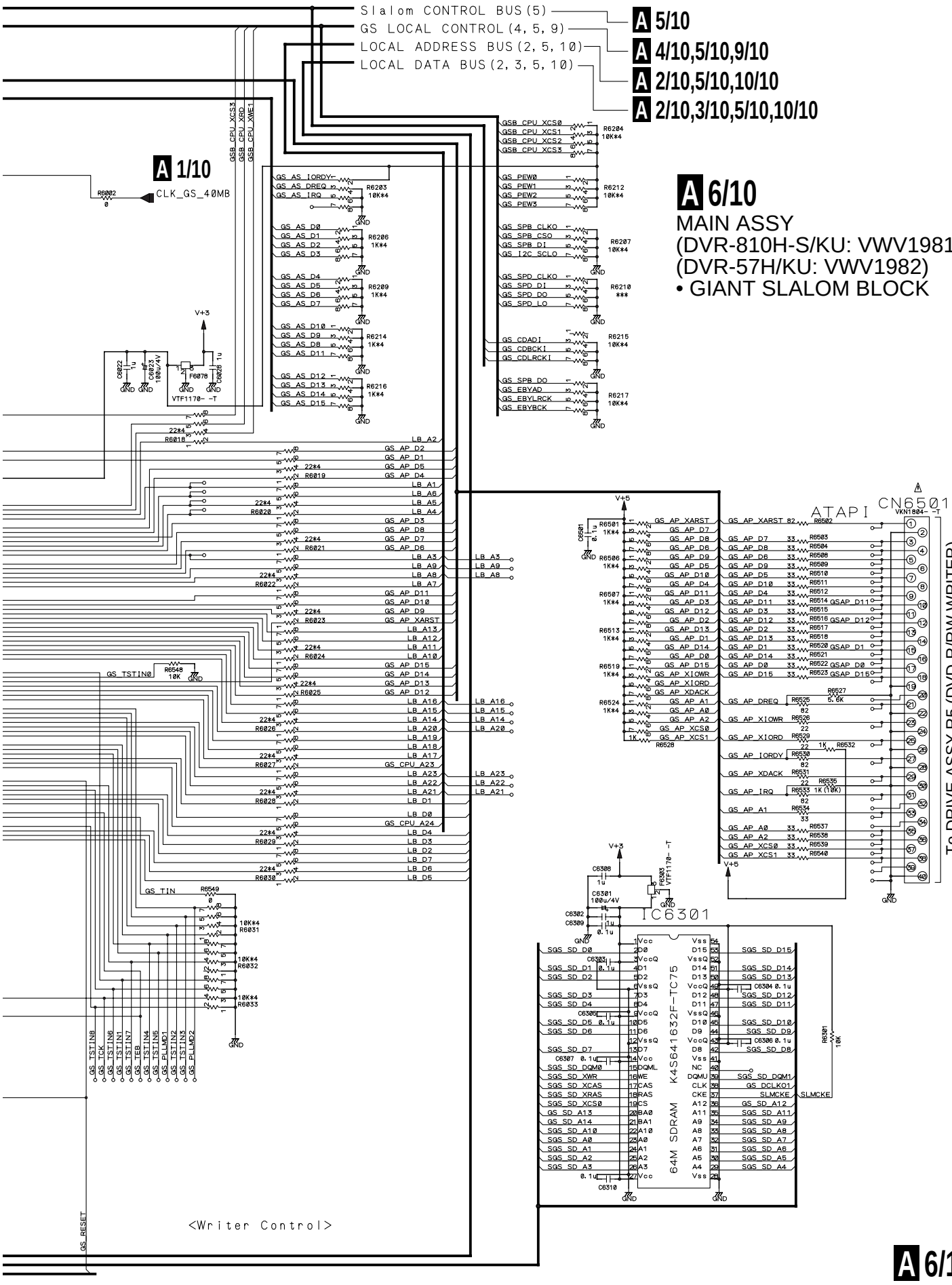


Slalom CONTROL BUS(5) — A 5/10
GS LOCAL CONTROL(4, 5, 9) — A 4/10,5/10,9/10
LOCAL ADDRESS BUS(2, 5, 10) — A 2/10,5/10,10/10
LOCAL DATA BUS(2, 3, 5, 10) — A 2/10,3/10,5/10,10/10

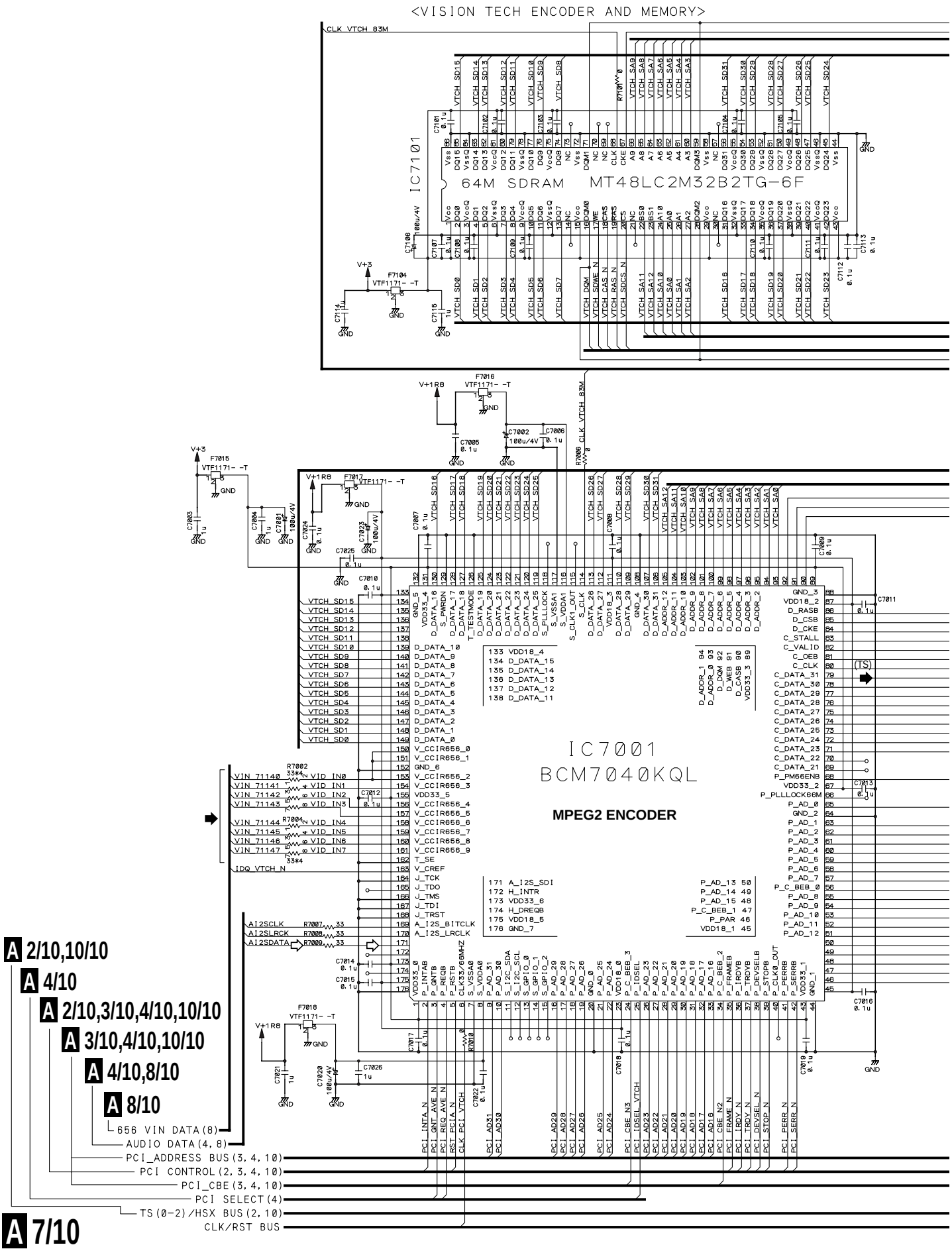
A 1/10

A 6/10

MAIN ASSY
(DVR-810H-S/KU: VWV1981)
(DVR-57H/KU: VWV1982)
• GIANT SLALOM BLOCK

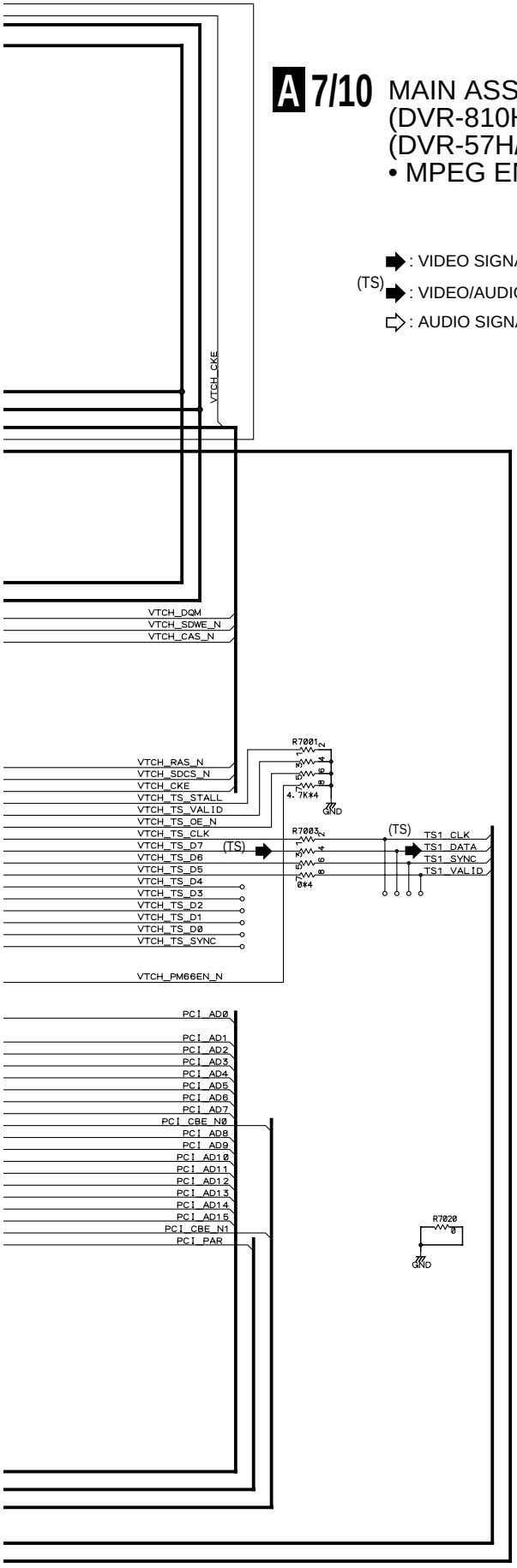


3.10 MAIN ASSY (7/10)



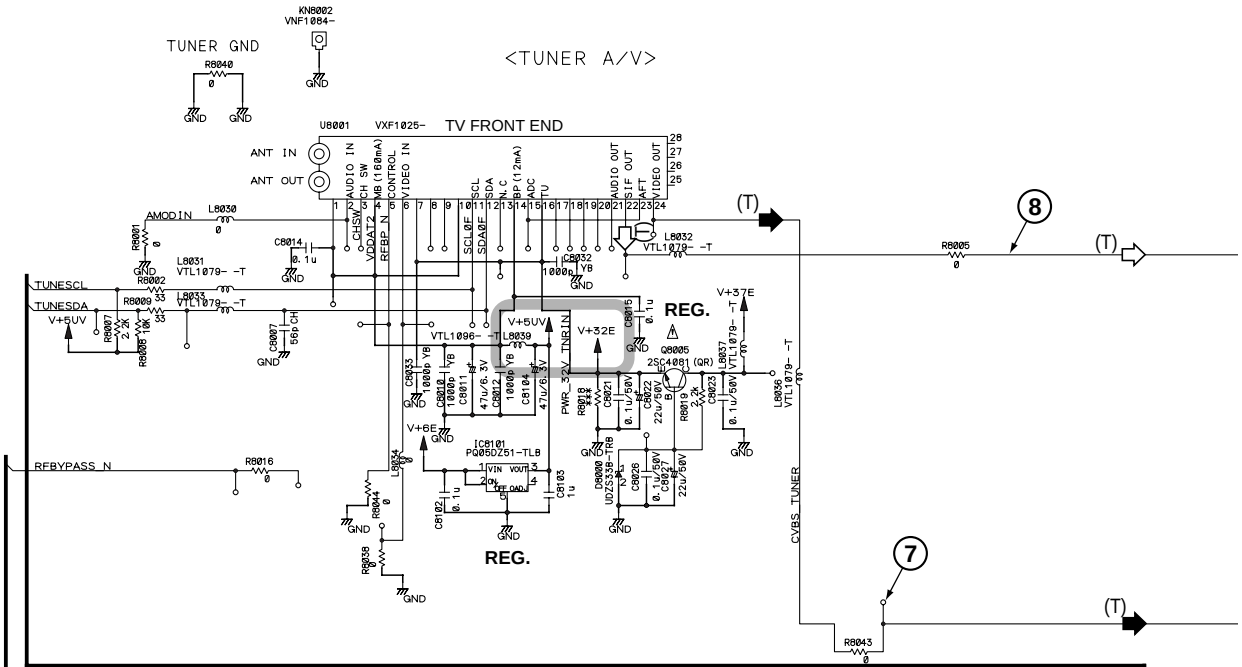
A 7/10 MAIN ASSY
(DVR-810H-S/KU: VWV1981)
(DVR-57H/KU: VWV1982)
• MPEG ENCODER BLOCK

: VIDEO SIGNAL
(TS) : VIDEO/AUDIO SIGNAL (TS)
: AUDIO SIGNAL

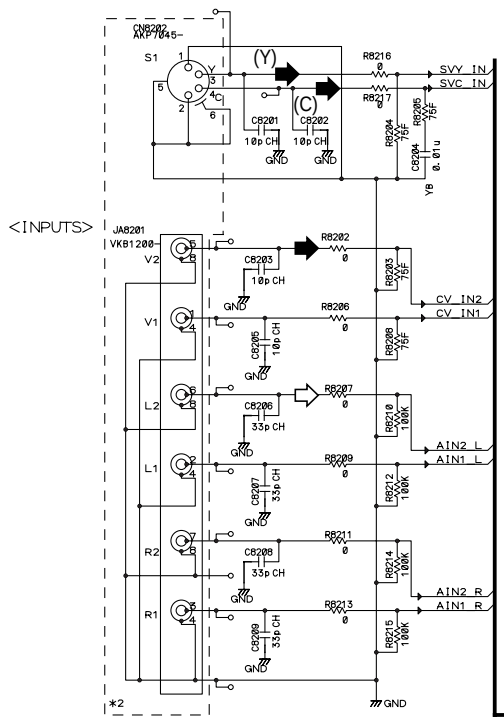


3.11 MAIN ASSY (8/10)

A 8/10 MAIN ASSY
(DVR-810H-S/KU: VWV1981)
(DVR-57H/KU: VWV1982)
• INPUT/TUNER/MSP/7115 BLOCK



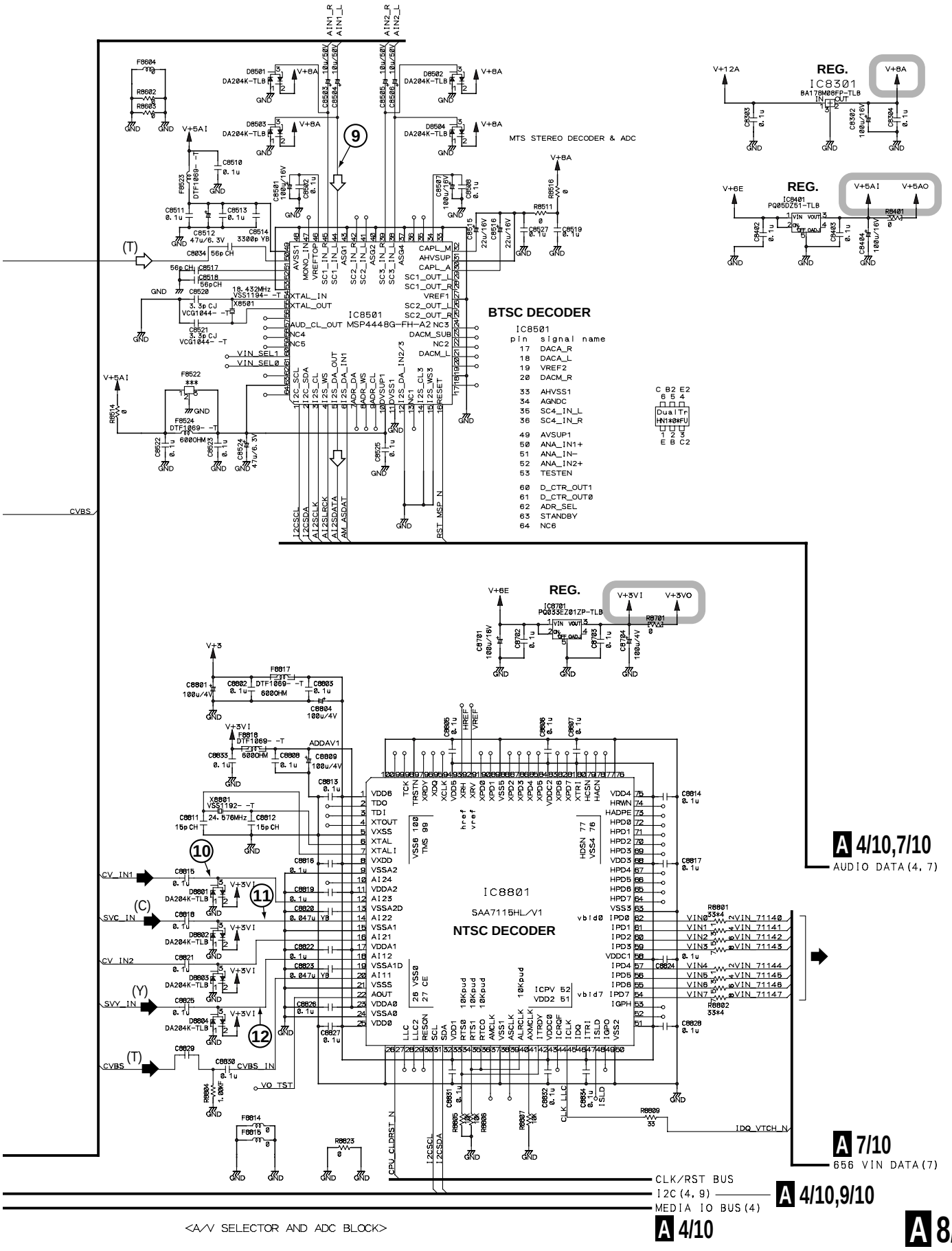
: The power supply is shown with the marked box.



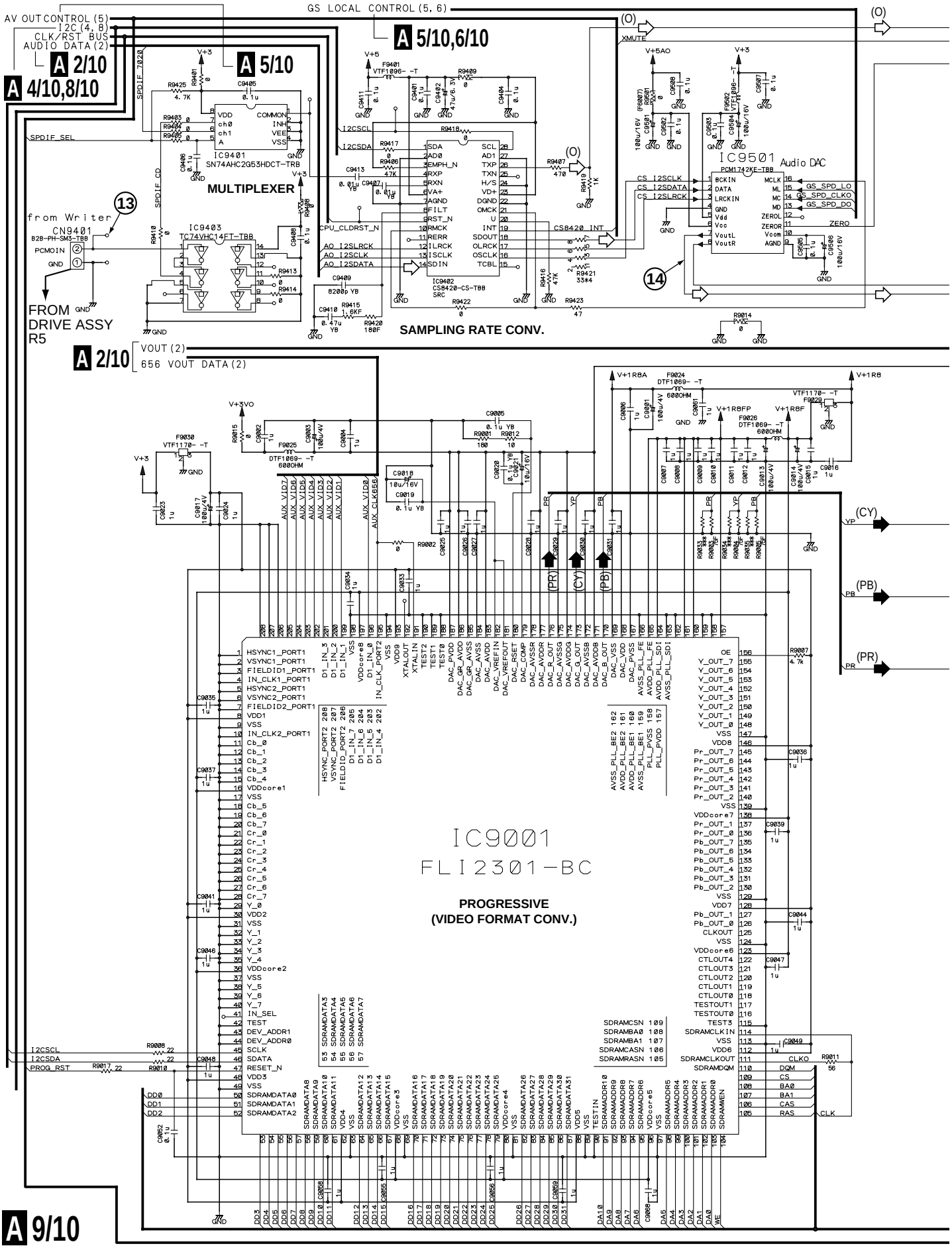
: VIDEO SIGNAL
(Y) : VIDEO SIGNAL (Y)
(C) : VIDEO SIGNAL (C)
(T) : VIDEO SIGNAL (TUNER)
: AUDIO SIGNAL
(T) : AUDIO SIGNAL (TUNER)

*2	DVR-810H-S/KU	DVR-57H/KU
CN8202	AKP7045-	AKP7050-
JA8201	VKB1200-	VKB1199-

A 8/10


MTS STEREO DECODER & ADC
BTSC DECODER
IC8501
MSP4448G-FH-A2
IC8501
pin signal name
17 DACA_R
18 DACA_L
19 VREF2
20 DACM_R
33 AHVSS1
34 AGNDC
35 SC4_IN_L
36 SC4_IN_R
49 AVSUP1
50 ANA_IN1+
51 ANA_IN-
52 ANA_IN2+
53 TESTEN
60 D_CTR_OUT1
61 D_CTR_OUT0
62 ADR_SEL
63 STANDBY
64 NC6
REG.
IC8301
BA178M08FP-TLB
REG.
IC8401
PQ05DZ51-TLB
REG.
IC8701
PQ033EZ01ZP-TLB
IC8801
SAA7115HL/V1
NTSC DECODER
CVBS
CV_IN1
SVC_IN
CV_IN2
SVV_IN
CVBS
CVBS_IN
VO_TST
A 4/10,7/10
AUDIO DATA(4, 7)
A 7/10
656 VIN DATA(7)
CLK/RST BUS
I2C(4, 9)
MEDIA IO BUS(4)
A 4/10,9/10
A 4/10
A 8/10
<A/V SELECTOR AND ADC BLOCK>

3.12 MAIN ASSY (9/10)



A 9/10 MAIN ASSY
(DVR-810H-S/KU: VWV1981)
(DVR-57H/KU: VWV1982)
• OUTPUT/PROGRESSIVE BLOCK

: VIDEO SIGNAL
(Y) : VIDEO SIGNAL (Y)
(C) : VIDEO SIGNAL (C)
(CY) : COMPONENT VIDEO SIGNAL (Y)
(PB) : COMPONENT VIDEO SIGNAL (PB)
(PR) : COMPONENT VIDEO SIGNAL (PR)
(CB) : VIDEO SIGNAL (CB)
(YI) : VIDEO SIGNAL (YI)
(CR) : VIDEO SIGNAL (CR)
: AUDIO SIGNAL
(O) : AUDIO SIGNAL (OPT)

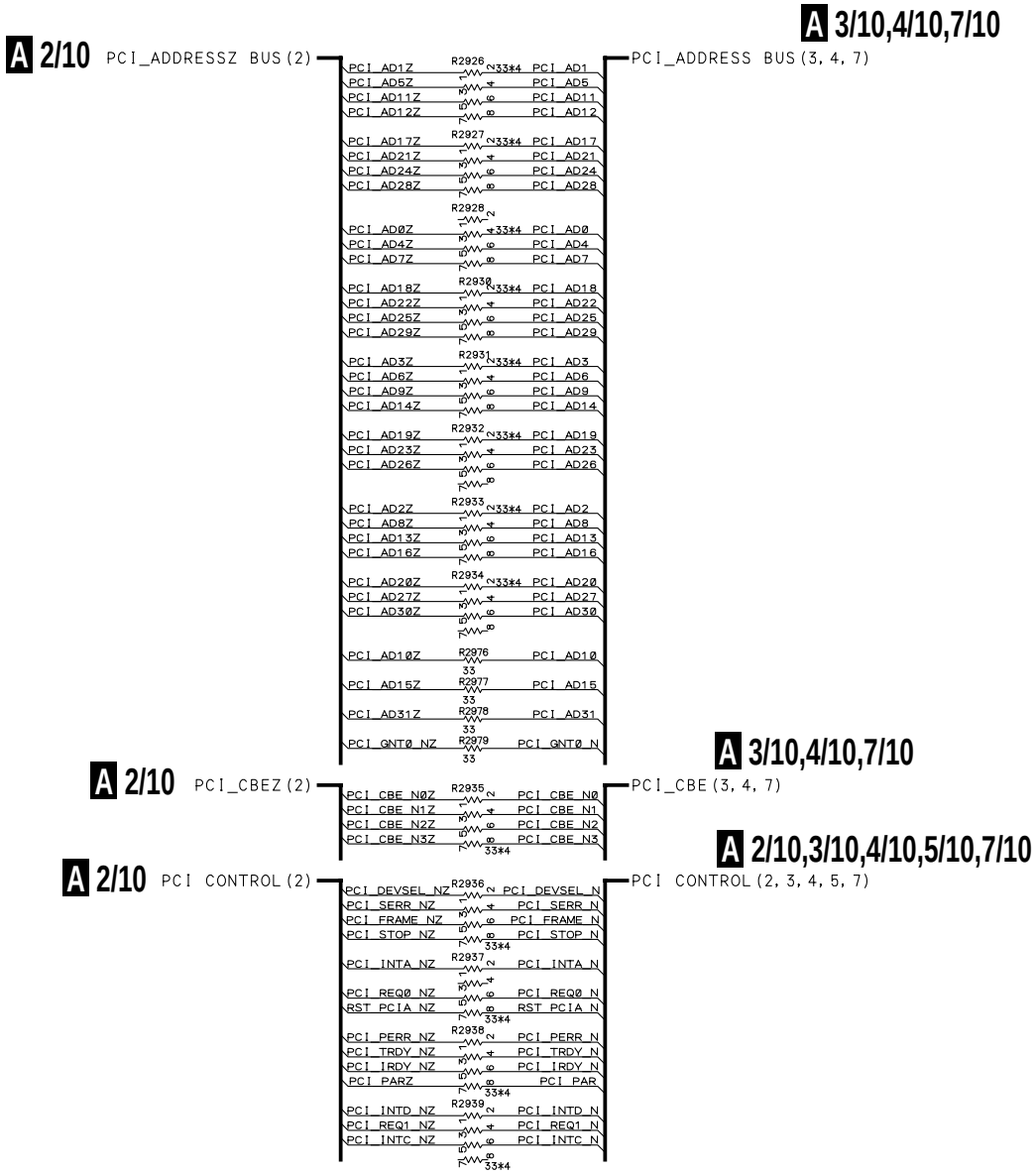
<Audio OUTPUT>
<OUTPUTS>
<525I/525P SELECTOR>
<Video OUTPUT>
MULTIPLEXER
75Ω DRIVER with LPF

*1	DVR-810H-S/KU	DVR-57H/KU
JA9302	AKP7117	AKP7116
JA9301	VKB1200-	VKB1199-
JA9303	VKB1165	VKB1198-

3.13 MAIN ASSY (10/10)

A 10/10

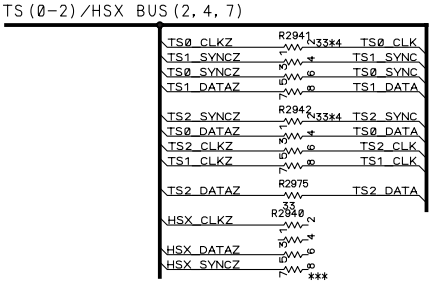
MAIN ASSY
(DVR-810H-S/KU: VWV1981)
(DVR-57H/KU: VWV1982)
• RESISTOR BLOCK


A 3/10,4/10,7/10
A 2/10 PCI_ADDRESSZ BUS(2)
PCI_ADDRESS BUS(3, 4, 7)
PCI_AD1Z PCI_AD5Z PCI_AD11Z PCI_AD12Z PCI_AD17Z PCI_AD21Z PCI_AD24Z PCI_AD28Z PCI_AD0Z PCI_AD4Z PCI_AD7Z PCI_AD18Z PCI_AD22Z PCI_AD25Z PCI_AD29Z PCI_AD3Z PCI_AD6Z PCI_AD9Z PCI_AD14Z PCI_AD19Z PCI_AD23Z PCI_AD26Z PCI_AD2Z PCI_AD8Z PCI_AD13Z PCI_AD16Z PCI_AD20Z PCI_AD27Z PCI_AD30Z PCI_AD10Z PCI_AD15Z PCI_AD31Z PCI_GNT0_NZ
R2926 R2927 R2928 R2930 R2931 R2932 R2933 R2934 R2976 R2977 R2978 R2979
33*4 33
PCI_AD1 PCI_AD5 PCI_AD11 PCI_AD12 PCI_AD17 PCI_AD21 PCI_AD24 PCI_AD28 PCI_AD0 PCI_AD4 PCI_AD7 PCI_AD18 PCI_AD22 PCI_AD25 PCI_AD29 PCI_AD3 PCI_AD6 PCI_AD9 PCI_AD14 PCI_AD19 PCI_AD23 PCI_AD26 PCI_AD2 PCI_AD8 PCI_AD13 PCI_AD16 PCI_AD20 PCI_AD27 PCI_AD30 PCI_AD10 PCI_AD15 PCI_AD31 PCI_GNT0_N
A 3/10,4/10,7/10
A 2/10 PCI_CBEZ(2)
PCI_CBE(3, 4, 7)
PCI_CBE_N0Z PCI_CBE_N1Z PCI_CBE_N2Z PCI_CBE_N3Z
R2935
33*4
PCI_CBE_N0 PCI_CBE_N1 PCI_CBE_N2 PCI_CBE_N3
A 2/10,3/10,4/10,5/10,7/10
A 2/10 PCI CONTROL(2)
PCI CONTROL(2, 3, 4, 5, 7)
PCI_DEVSEL_NZ PCI_SERR_NZ PCI_FRAME_NZ PCI_STOP_NZ PCI_INTA_NZ PCI_REQ0_NZ RST_PCIA_NZ PCI_PERR_NZ PCI_TRDY_NZ PCI_IRDY_NZ PCI_PARZ PCI_INTD_NZ PCI_REQ1_NZ PCI_INTC_NZ
R2936 R2937 R2938 R2939
33*4
PCI_DEVSEL_N PCI_SERR_N PCI_FRAME_N PCI_STOP_N PCI_INTA_N PCI_REQ0_N RST_PCIA_N PCI_PERR_N PCI_TRDY_N PCI_IRDY_N PCI_PAR PCI_INTD_N PCI_REQ1_N PCI_INTC_N

A 10/10

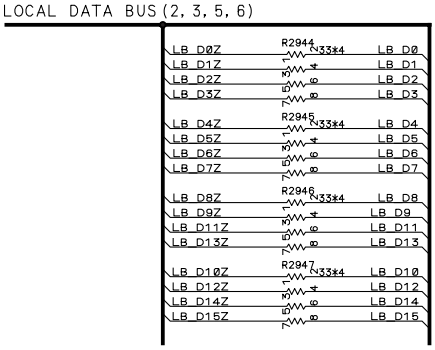
A 2/10,4/10,7/10

TS (0-2) /HSX BUS (2, 4, 7)



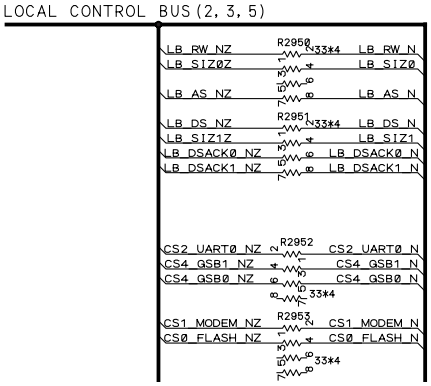
A 2/10,3/10,5/10,6/10

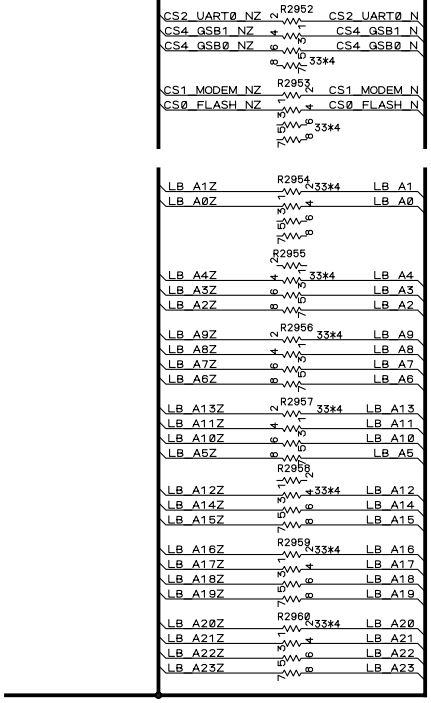
LOCAL DATA BUS (2, 3, 5, 6)



A 2/10,3/10,5/10

LOCAL CONTROL BUS (2, 3, 5)





LOCAL ADDRESS BUS (2, 3, 5, 6)

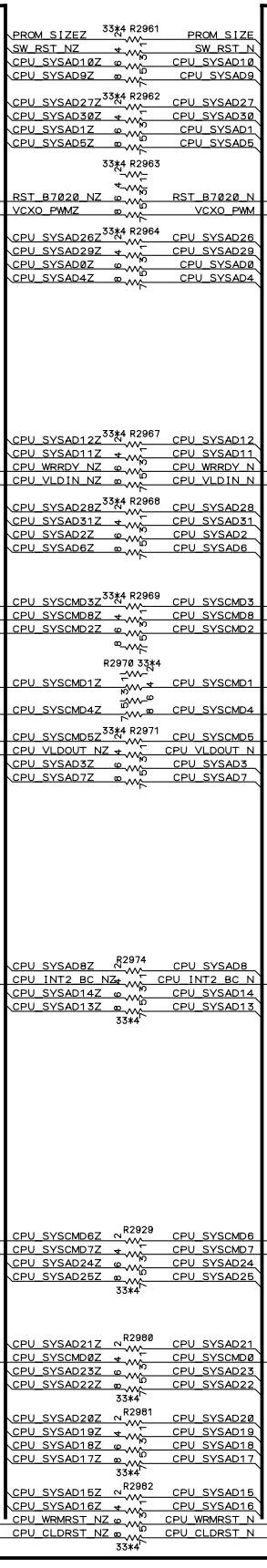
A 2/10,3/10,5/10,6/10

A 2/10

CPU_ADDRESSZ BUS (2)

A 1/10

CPU_ADDRESS BUS (1)



A 2/10

CPU CONTROLZ BUS (2)

A 1/10

CPU CONTROL BUS (1)

A 2/10

CPU_COMMAND BUS (2)

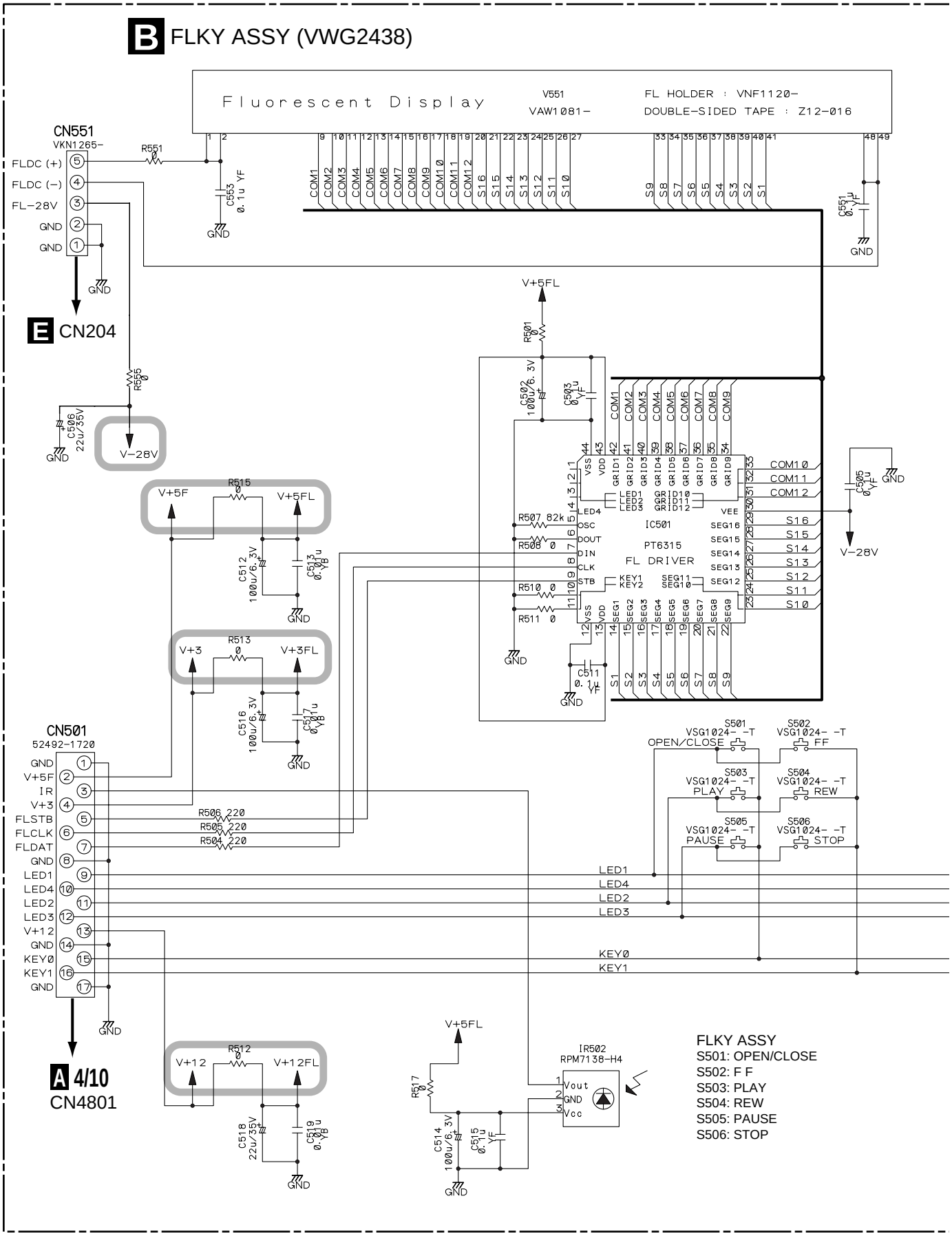
A 1/10

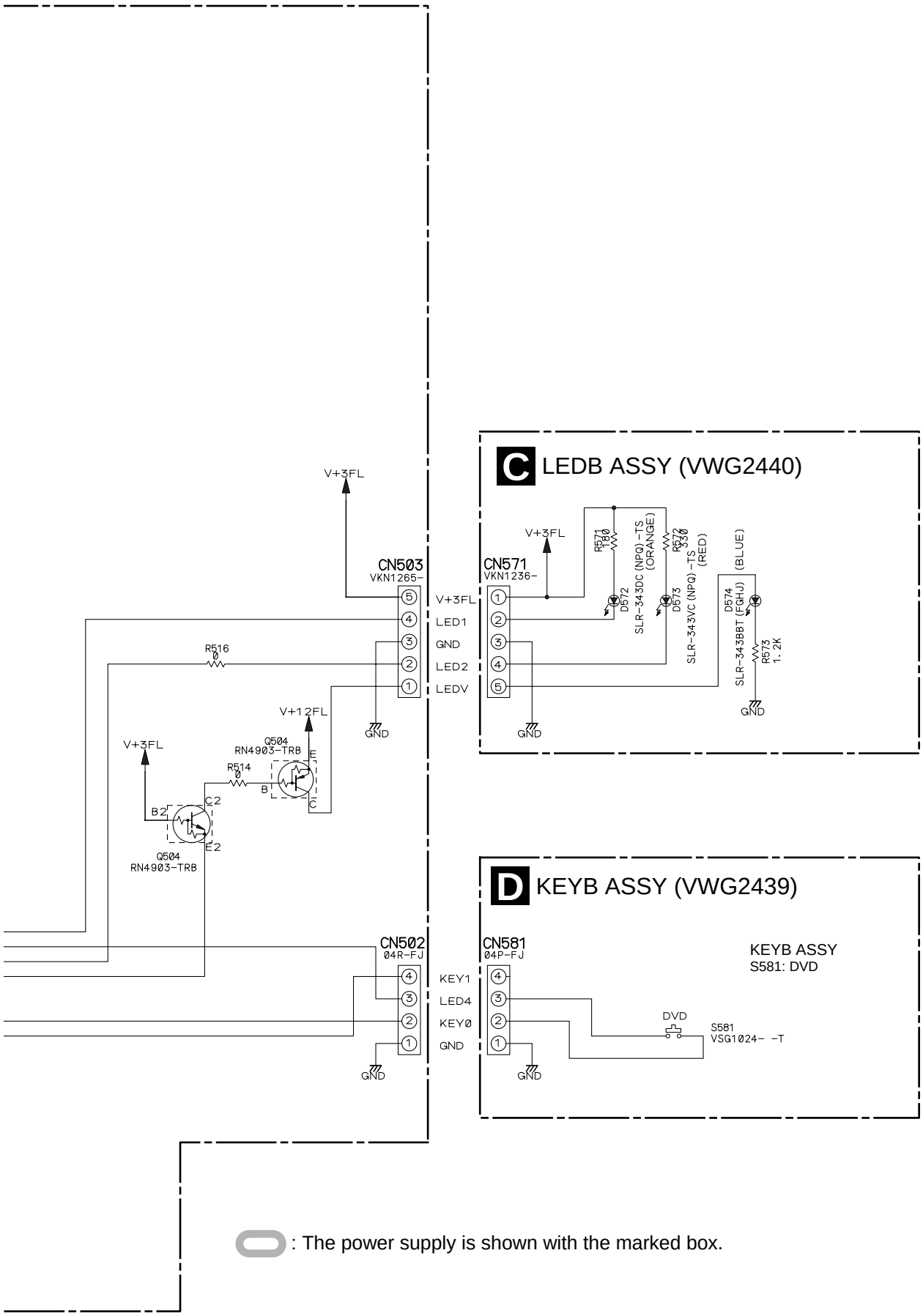
CPU_COMMAND BUS (1)

CLK/RST BUS

A 10/10

3.14 FLKY, LEDB and KEYB ASSY

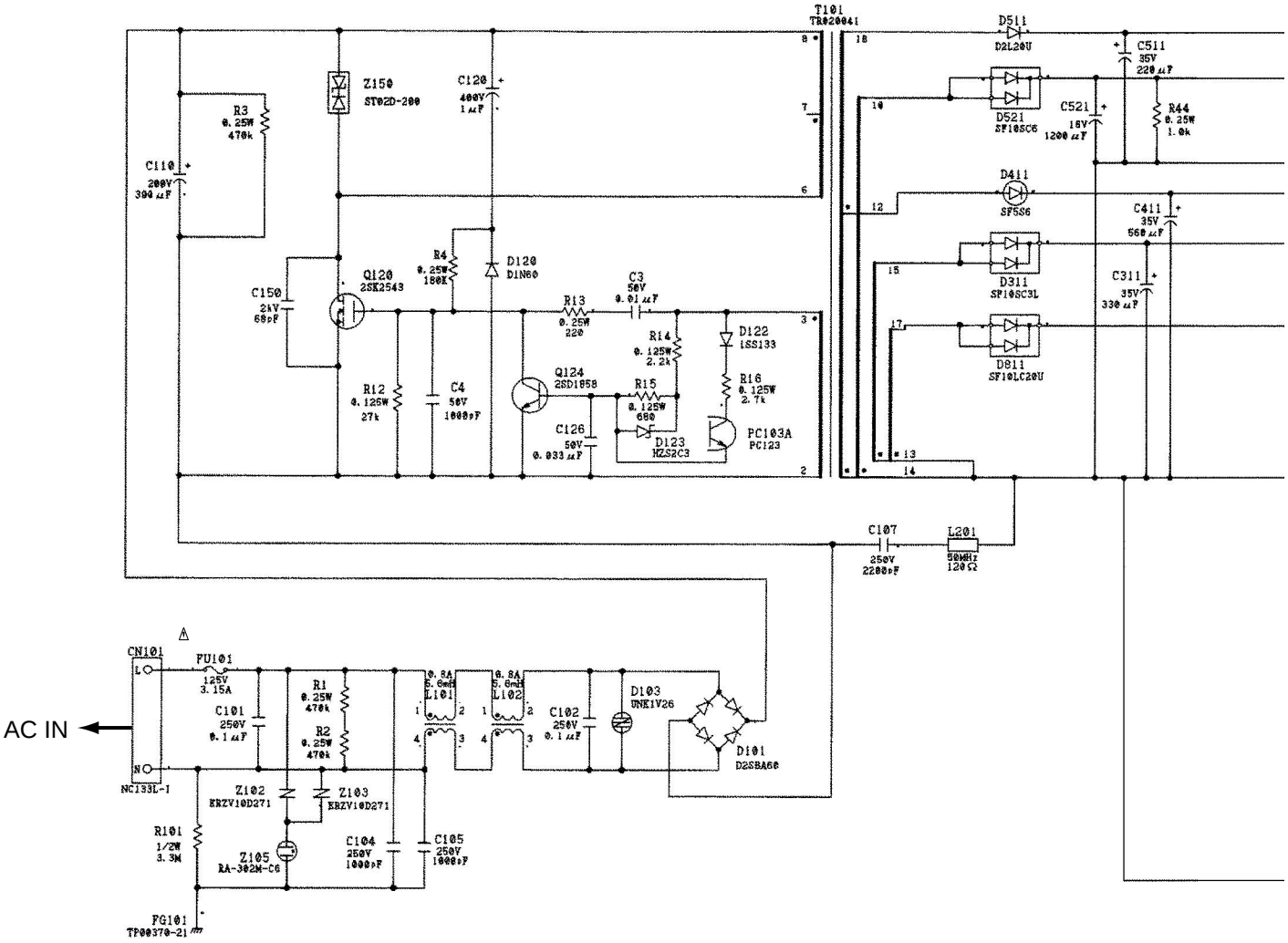




: The power supply is shown with the marked box.

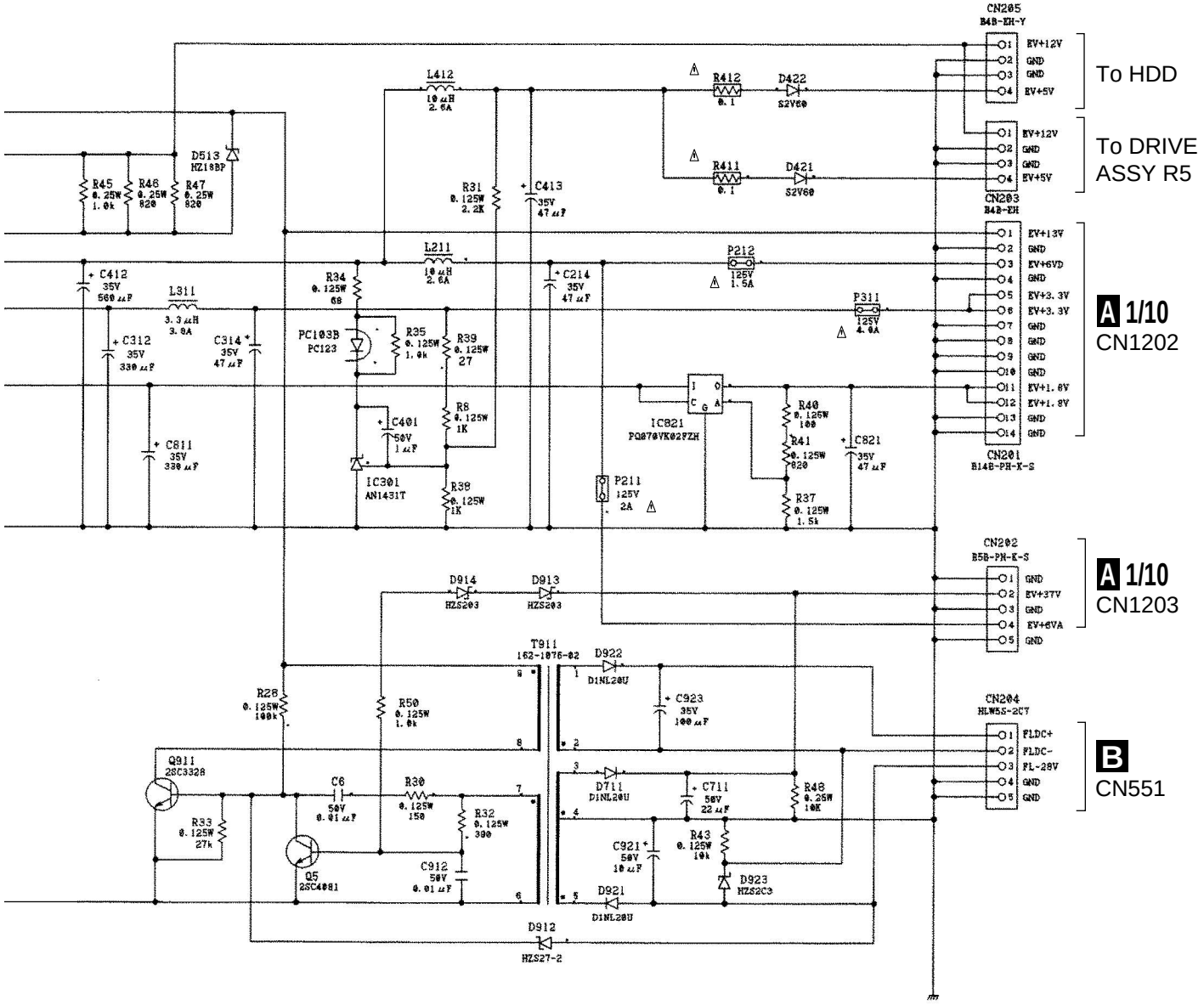
3.15 POWER SUPPLY ASSY

E POWER SUPPLY ASSY (VWR1372)



• NOTE FOR FUSE REPLACEMENT

CAUTION - FOR CONTINUED PROTECTION AGAINST RISK OF FIRE, REPLACE WITH SAME TYPE AND RATINGS ONLY FOR FU101.



CAUTION : FOR CONTINUED PROTECTION AGAINST RISK OF FIRE,
REPLACE ONLY WITH SAME TYPE NO. 20N4000, MFD BY SKYGATE FOR P311.

CAUTION : FOR CONTINUED PROTECTION AGAINST RISK OF FIRE,
REPLACE WITH SAME TYPE AND RATINGS ONLY FOR P211 AND P212.

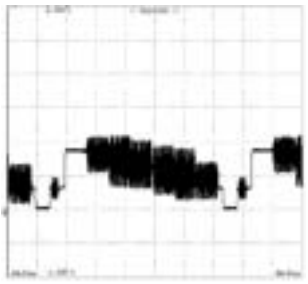
3.16 WAVEFORMS

■ WAVEFORMS

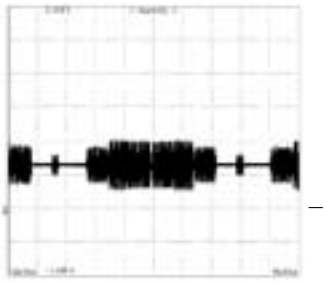
Input signal: 75/0/75/0 color-bar signal
Audio signal: 1kHz

A 2/10 MAIN ASSY

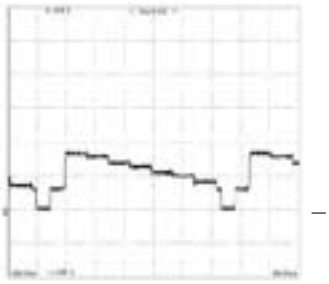
1 Foot of R2045 (CVBS OUT)
V: 500mV/div. H: 10µS/div.



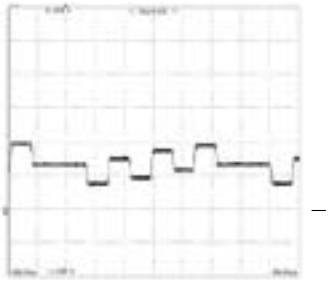
2 Foot of R2047 (VOUT C)
V: 500mV/div. H: 10µS/div.



3 Foot of R2049 (VOUT Y)
V: 500mV/div. H: 10µS/div.

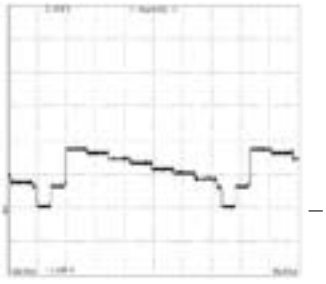


4 Foot of R2051 (VOUT CB)
V: 500mV/div. H: 10µS/div.

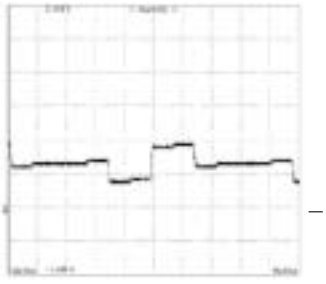


A 2/10 MAIN ASSY

5 Foot of R2053 (VOUT YI)
V: 500mV/div. H: 10µS/div.

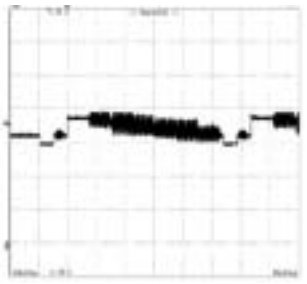


6 Foot of R2055 (VOUT CR)
V: 500mV/div. H: 10µS/div.

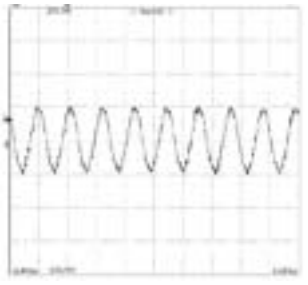


A 8/10 MAIN ASSY

7 Foot of R8043 (CVBS)
V: 1V/div. H: 10µS/div.

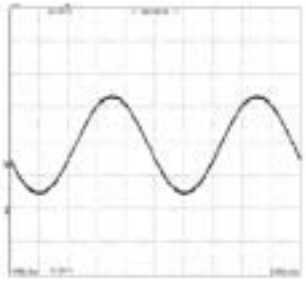


8 Foot of R8005 (SIF OUT)
V: 50mV/div. H: 200nS/div.

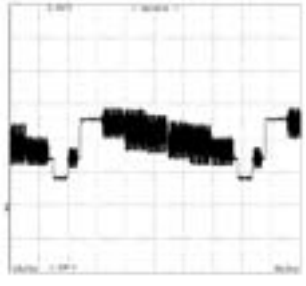


A 8/10 MAIN ASSY

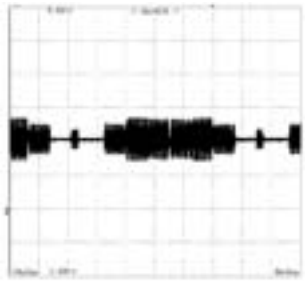
9 IC8501 - pin 44 (AIN2_L)
V: 2V/div. H: 200µS/div.



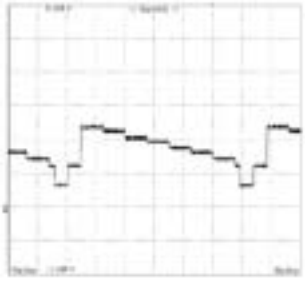
10 IC8801 - pin 12 (CV IN2)
V: 500mV/div. H: 10µS/div.



11 IC8801 - pin 14 (SVC IN)
V: 500mV/div. H: 10µS/div.

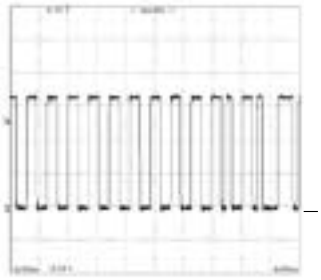


12 IC8801 - pin 18 (SVY IN)
V: 500mV/div. H: 10µS/div.

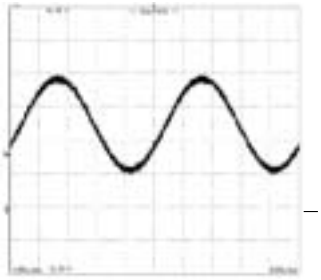


A 9/10 MAIN ASSY

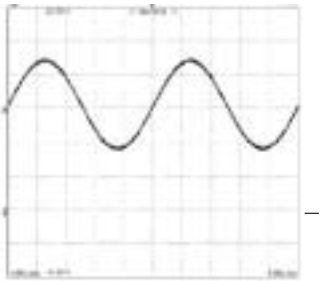
13 CN9401 - pin 2 (PCMOIN)
V: 1V/div. H: 1µS/div.



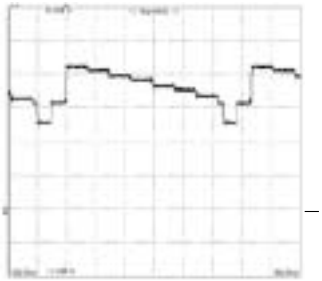
14 IC9501 - pin 7 (VOUT L)
V: 1V/div. H: 200µS/div.



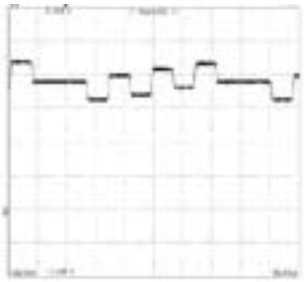
15 IC9601 - pin 1 (LCH OUT)
V: 2V/div. H: 200µS/div.



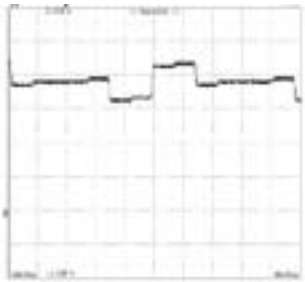
16 Q9202 - emitter (CY)
V: 500mV/div. H: 10µS/div.



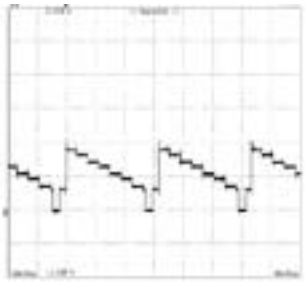
17 Q9206 - emitter (PB)
V: 500mV/div. H: 10µS/div.



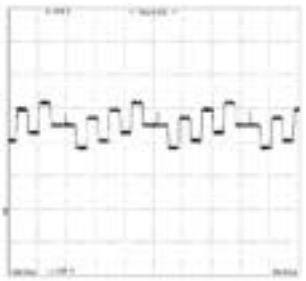
18 Q9204 - emitter (PR)
V: 500mV/div. H: 10µS/div.



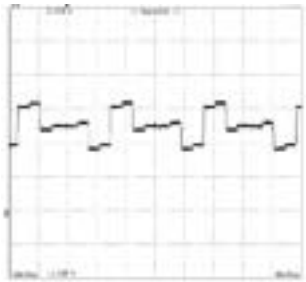
19 IC9001 - pin 173 (YP)
V: 500mV/div. H: 10µS/div.



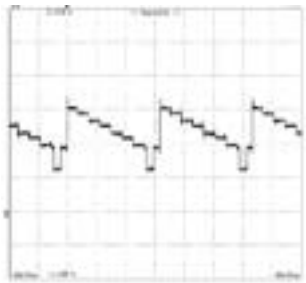
20 IC9001 - pin 170 (PB)
V: 500mV/div. H: 10µS/div.



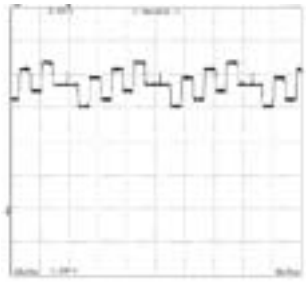
21 IC9001 - pin 176 (PR)
V: 500mV/div. H: 10µS/div.



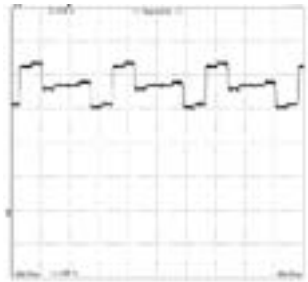
22 IC9202 - pin 2 (YP)
V: 500mV/div. H: 10µS/div.



23 IC9202 - pin 5 (PB)
V: 500mV/div. H: 10µS/div.

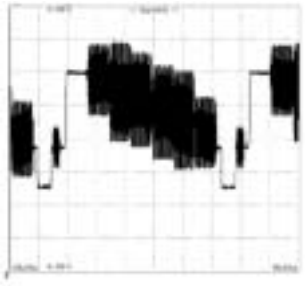


24 IC9202 - pin 12 (PR)
V: 500mV/div. H: 10µS/div.

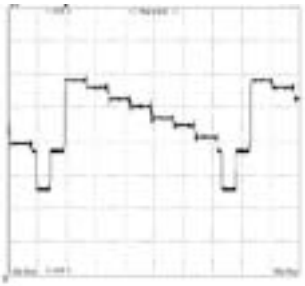


A 9/10 MAIN ASSY

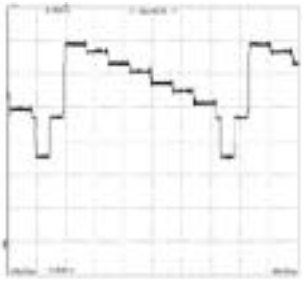
25 IC9301 - pin 33 (CVBS OUT)
V: 500mV/div. H: 10µS/div.



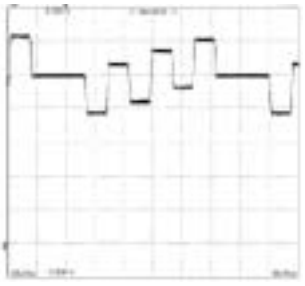
26 IC9301 - pin 28 (Y OUT1)
V: 500mV/div. H: 10µS/div.



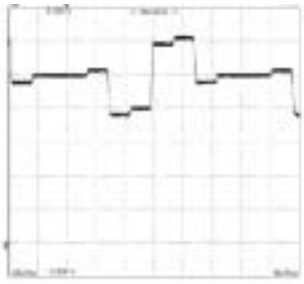
27 IC9301 - pin 25 (Y OUT2)
V: 500mV/div. H: 10µS/div.



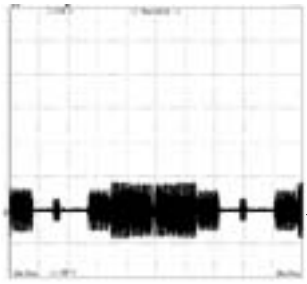
28 IC9301 - pin 23 (PB OUT)
V: 500mV/div. H: 10µS/div.



29 IC9301 - pin 21 (PR OUT)
V: 500mV/div. H: 10µS/div.



30 JA9302 - pin 10 (C OUT)
V: 500mV/div. H: 10µS/div.



A

B

C

D

E

F

3.17 VOLTAGES_1

■ VOLTAGES

• Input : Color-bar signal

A 1/10 MAIN ASSY

IC1001 (UPD30541GD167H)

Pin	Voltage (V)	Pin	Voltage (V)	Pin	Voltage (V)
1	0	91	3.3	181	3.3
2	0	92	2.5	182	3.3
3	0.9	93	0	183	2.5
4	3.3	94	3.3	184	3.3
5	0.8	95	3.3	185	0
6	2.5	96	0	186	0
7	0.2-1	97	2.5	187	3.3
8	0	98	3.3	188	0.1-1.2
9	0	99	0	189	0
10	0.2-1	100	3.3	190	3.3
11	3.3	101	3.3	191	2.5
12	2.1	102	2.5	192	0
13	0	103	0	193	3.3
14	0.9	104	0	194	0-0.6
15	2.5	105	0	195	0
16	0.9	106	0	196	0.3
17	0	107	30m	197	0
18	0.7	108	0	198	0.3
19	3.3	109	1	199	3.3
20	0	110	3.3	200	2.5
21	1.9	111	1.5	201	0.13
22	0	112	2.5	202	0
23	0.9	113	1.5	203	0.5
24	2.5	114	0	204	0
25	3.3	115	1.5	205	2.5
26	0	116	3.3	206	0.5
27	1	117	0	207	3.3
28	0	118	2.5	208	0
29	1	119	0		
30	0	120	1.7		
31	3.3	121	3.3		
32	2.5	122	1.7		
33	1.5	123	0		
34	0	124	1.2		
35	1.1	125	2.5		
36	3.3	126	3.3		
37	0	127	0		
38	3.3	128	0.7		
39	2.5	129	0		
40	3.3	130	3.3		
41	3.3	131	2.5		
42	3.3	132	0.6		
43	0	133	0		
44	3.3	134	0.2		
45	2.5	135	0		
46	3.3	136	0.2		
47	0	137	3.3		
48	3.3	138	0		
49	2.5	139	2.5		
50	3.3	140	0.3		
51	3.3	141	0		
52	0	142	3.3		
53	0	143	3.3		
54	0	144	0.3		
55	3.3	145	0		
56	30m	146	3.3		
57	2.5	147	2.5		
58	-	148	40m		
59	0	149	3.3		
60	90m	150	0		
61	0	151	0		
62	3.3	152	0		
63	2.5	153	2.5		
64	90m	154	0.12		
65	0	155	0		
66	50m	156	3.3		
67	0	157	0		
68	3.3	158	0		
69	-	159	2.5		
70	3.3	160	0.1-1		
71	0	161	0		
72	3.3	162	3.3		
73	0	163	0		
74	3.3	164	0.15		
75	2.5	165	2.5		
76	1.7	166	0.2		
77	0	167	0		
78	2.5	168	3.3		
79	0.9	169	3.3		
80	10m	170	0.3-1		
81	3.3	171	2.5		
82	0	172	0		
83	3.3	173	3.3		
84	2.5	174	0		
85	0	175	2.2		
86	0	176	3.3		
87	0	177	30m		
88	3.3	178	2.5		
89	3.3	179	3.3		
90	0	180	0		

A 2/10 MAIN ASSY

IC2005 (PEA005A8)

Pin	Voltage (V)
30	0
31	3.4
32	3.4
1	0
2	0
3	0
4	0
5	0
6	0
7	0
8	0
9	0
10	0
11	0
12	0
13	2.2
14	2.2
15	2.2
16	0
17	2.2
18	2.2
19	2.2
20	2.2
21	2.1
22	3.3
23	0
24	3.4
25	0
26	0
27	0
28	0
29	0

A 3/10 MAIN ASSY

IC3101 (SI2433-KTR-REVF)

Pin	Voltage (V)
1	1.6
2	1.6
3	0
4	2.2
5	3.3
6	0
7	1.8
8	2.2
9	3.4
10	3.3
11	3.3
12	3.3
13	3.3
14	2.2
15	2.2
16	2.2
17	1.8
18	0
19	3.3
20	4.7
21	1.7
22	2.2
23	2.2
24	2.2

A 3/10 MAIN ASSY

IC3201 (SI3015-KSR-REVD)

Pin	Voltage (V)
1	0-0.13
2	0-0.13
3	0-0.13
4	0-0.13
5	0-0.13
6	0-0.13
7	0-0.13
8	0-0.13
9	0-0.13
10	0-0.13
11	0-0.13
12	–
13	0-0.13
14	0-0.13
15	0-0.13
16	0-0.13

A 3/10 MAIN ASSY

IC3002 (UPD720100AGM-8EY)

Pin	Voltage (V)	Pin	Voltage (V)
1	3.3	81	3.3
2	2m	82	2.2
3	2m	83	2.1
4	19m	84	2
5	1.6	85	2.1
6	1.6	86	2.2
7	0	87	2.1
8	3.3	88	0
9	0	89	3.3
10	3.3	90	3.3
11	–	91	4m
12	0	92	4m
13	0	93	3.3
14	2.7m	94	3.3
15	2.8m	95	3.3
16	2.8m	96	3.3
17	0	97	3.3
18	1.6	98	5m
19	3.3	99	3.3
20	3.3	100	3.3
21	0	101	0
22	3.3	102	3.3
23	3.3	103	3.3
24	3.3	104	5m
25	3.3	105	3.3
26	3.3	106	5m
27	3.3	107	3.3
28	3m	108	0
29	3.3	109	3.3
30	3.3	110	0
31	0	111	–
32	3.3	112	0
33	3.3	113	3.3
34	3.3	114	0
35	3.3	115	–
36	3.3	116	0
37	3.3	117	–
38	3.3	118	–
39	3.3	119	–
40	3.3	120	3.3
41	0	121	0
42	0	122	0
43	3.3	123	0
44	3m	124	0
45	3m	125	3.3
46	3m	126	0
47	3.3	127	0
48	3.3	128	0
49	3.3	129	0
50	3.3	130	0
51	3.3	131	3.3
52	3.3	132	0
53	3.3	133	0
54	3.3	134	0
55	3.3	135	3.3
56	20m	136	2m
57	3.3	137	3.3
58	3.3	138	1.8
59	20m	139	2m
60	3.3	140	2
61	20m	141	–
62	3.3	142	3.3
63	3.3	143	2m
64	10m	144	1.3
65	3.3	145	2m
66	0	146	3.3
67	3.3	147	0
68	3.3	148	–
69	3.3	149	0
70	3.3	150	3.3
71	3.3	151	0
72	3.3	152	–
73	3.3	153	0
74	3.3	154	–
75	3.3	155	0
76	3.3	156	3.3
77	3.3	157	0
78	3.3	158	–
79	0	159	0
80	0	160	0

A 2/10 MAIN ASSY

• Input : Color-bar signal

IC2101 (BCM7020RKPB1-D0)

Pin	Voltage (V)
A1	V
A2	G
A3	V
A4	1.4
A5	1.6-1.8
B1	G
B2	G
B3	-
B4	1.4
B5	1.4
C1	V
C2	1.4
C3	2.3-2.5
C4	1.4
C5	1.4
D1	3.3
D2	3.3
D3	1.4
D4	0
D5	1.4
E1	2.8
E2	1.8
E3	2.9
E4	-
E5	1.8
F1	0.24
F2	0.28
F3	0.15
F4	0.34
F5	G
G1	0.38-0.41
G2	0.37-0.41
G3	0.32-0.38
G4	0.34-0.4
G5	V
H1	0.32-0.38
H2	0.25
H3	0.35-0.38
H4	2.8
H5	G
J1	0.34-0.4
J2	0.32-0.38
J3	0.28-0.33
J4	0.69
J5	V
K1	1.8
K2	0.38-0.42
K3	2.8
K4	0.38-0.42
K5	G
L1	0.33-0.43
L2	1.3
L3	0.29
L4	0.23
L5	V
M1	2.8
M2	0.37
M3	0.26
M4	0.37
M5	G
N1	0.36
N2	1.03
N3	0.33
N4	0.26
N5	V
P1	0.16
P2	0.14
P3	0.32
P4	0.3
P5	G
R1	1.8
R2	2.7
R3	0.38
R4	0.24
R5	V
T1	0.26
T2	0.2
T3	0.38
T4	0.43
T5	G
U1	0.32
U2	0.42
U3	2.7
U4	0.38
U5	V
V1	0.25
V2	0.39
V3	1.2
V4	0.37
V5	G

Pin	Voltage (V)
W1	0.39
W2	0.33
W3	0.43
W4	2.8
W5	V
Y1	0.29
Y2	1.8
Y3	0.26
Y4	0.26
Y5	G
AA1	1.3
AA2	0.39
AA3	0.37
AA4	0.37
AA5	V
AB1	0.37-0.42
AB2	0.35-0.75
AB3	0.35-0.53
AB4	0.98
AB5	G
AB6	V
AB7	G
AB8	V
AB9	G
AB10	V
AB11	G
AB12	V
AB13	G
AB14	V
AB15	G
AB16	G
AB17	V
AB18	-
AB19	G
AB20	V
AB21	G
AC1	2.8
AC2	0.23-0.27
AC3	0.32-0.37
AC4	0.29
AC5	3.3
AC6	-
AC7	2.3
AC8	2.3
AC9	2.2
AC10	2.2
AC11	2.2
AC12	3.2
AC13	3.2
AC14	2.5
AC15	2.2
AC16	V
AC17	2.3
AC18	1.7
AC19	-
AC20	0.77
AC21	3.3
AD1	G
AD2	0.36-0.42
AD3	0.45
AD4	3.3
AD5	1.7
AD6	3.3
AD7	V
AD8	2.2
AD9	2.2
AD10	2.2
AD11	2.3
AD12	3.3
AD13	3.3
AD14	2.2
AD15	2.2
AD16	2.2
AD17	2.2
AD18	0.55
AD19	1.7
AD20	0.66
AD21	0
AE1	V
AE2	G
AE3	3.3
AE4	1.3
AE5	-
AE6	3.2
AE7	2.2
AE8	2.2
AE9	2.3
AE10	2.1
AE11	V
AE12	3.3

Pin	Voltage (V)
AE13	2.2
AE14	2.2
AE15	2.2
AE16	2.1
AE17	2.1
AE18	2.1
AE19	-
AE20	G
AE21	3.3
AF1	G
AF2	G
AF3	V
AF4	3.3
AF5	3
AF6	2.1
AF7	2.1
AF8	2.2
AF9	2.1
AF10	2.2
AF11	3.2
AF12	3.4
AF13	3.2
AF14	2.1
AF15	2.1
AF16	2.1
AF17	2.1
AF18	2
AF19	1.7
AF20	-
AF21	-
AF22	-
AF23	-
AF24	1.7
AF25	V
AF26	V
AE22	0
AE23	0
AE24	0
AE25	G
AE26	G
AD22	0
AD23	1.4
AD24	0
AD25	2.1
AD26	0.5
AC22	0
AC23	0
AC24	2.2
AC25	2.2
AC26	2.2
AB22	G
AB23	2.2
AB24	2.2
AB25	2.2
AB26	1.4
AA22	V
AA23	0
AA24	0.67
AA25	0.48
AA26	0.67
Y22	V(1.8)
Y23	0
Y24	0.5
Y25	0.67
Y26	G
W22	V
W23	3.3
W24	3.3
W25	2.2
W26	0
V22	V
V23	0
V24	0
V25	0
V26	0
U22	G
U23	0
U24	0
U25	0
U26	0
T22	G
T23	0
T24	0
T25	0
T26	0
R22	V
R23	0
R24	0
R25	0
R26	0

Pin	Voltage (V)
P22	V
P23	V
P24	0
P25	G
P26	G
N22	V
N23	V
N24	G
N25	0.81
N26	0
M22	2.4
M23	V
M24	1.5
M25	G
M26	-
L22	0
L23	3.3
L24	2.3
L25	1.7
L26	2.6
K22	0
K23	0
K24	0
K25	0
K26	2.8
J22	V
J23	0
J24	0
J25	0
J26	0
H22	V
H23	3.3
H24	0
H25	0
H26	0
G22	V(3.3)
G23	G
G24	G
G25	-
G26	3.3
F22	V
F23	G
F24	G
F25	-
F26	-
E26	3.3
E25	3.3
E24	0
E23	0
E22	V
E21	3.3
E20	3.3
E19	V
E18	G
E17	V
E16	G
E15	V
E14	G
E13	V
E12	G
E11	V
E10	G
E9	V
E8	G
E7	V
E6	G
D26	3.3
D25	1.7
D24	1.3
D23	1.7
D22	3.3
D21	0
D20	0.99
D19	3.3
D18	1-2
D17	0.8-1.6
D16	3.3
D15	2-2.7
D14	0.3-0.7
D13	0-0.6
D12	0.3-0.6
D11	0.1-0.2
D10	0
D9	0
D8	0.9-1.7
D7	2
D6	1.3-1.4
C26	V
C25	3.32
C24	0

Pin	Voltage (V)
C23	V
C22	1.4
C21	-
C20	1
C19	1-2
C18	0.3-1
C17	3.2
C16	3.3
C15	0.3-1
C14	0.2-0.6
C13	0.7
C12	0.6
C11	0.2
C10	0.15
C9	0.15
C8	0.6-1.3
C7	-
C6	1.3-1.5
B26	G
B25	V
B24	3.3
B23	0
B22	-
B21	-
B20	1.5
B19	1-2
B18	1.6-2.2
B17	0
B16	1.7
B15	0.4-0.7
B14	3
B13	0-0.5
B12	0-0.4
B11	0.2-0.6
B10	1.7
B9	3.3
B8	0.6-1.2
B7	1.8-2.4
B6	1.8-2.1
A26	V
A25	G
A24	G
A23	V
A22	-
A21	1.6
A20	1.3
A19	0.6-2
A18	0.7-1.5
A17	-
A16	1-1.6
A15	0.2-0.6
A14	0.65
A13	3.3
A12	0
A11	0.2-0.3
A10	0.55
A9	0.48
A8	0.63
A7	0.6
A6	0.7-0.9

3.18 VOLTAGES_2

A 4/10 MAIN ASSY

• Input : Color-bar signal

IC4401 (AT90SC6464C-AL)

Pin	Voltage (V)
1	-
2	1.7
3	-
4	-
5	-
6	0
7	-
8	-
9	-
10	3.3
11	-
12	-
13	-
14	-
15	-
16	-
17	-
18	-
19	-
20	-
21	-
22	-
23	-
24	0
25	-
26	-
27	-
28	-
29	-
30	-
31	3.3
32	3.3
33	-
34	-
35	-
36	-
37	-
38	-
39	-
40	-
41	-
42	-
43	-

IC4001 (CASC-00003-000)

Pin	Voltage (V)
1	0
2	0
3	2.2
4	2.2
5	0
6	2.3
7	2.3
8	0
9	3.3
10	2.2
11	2.2
12	0
13	2
14	2.3
15	0
16	3.3
17	2
18	2.2
19	0
20	2
21	2
22	0
23	3.3
24	2
25	2
26	0
27	3.3
28	2
29	2.2
30	0
31	2.3
32	2.1
33	0
34	3.3
35	2
36	3.3
37	3.3
38	3.3
39	3.3
40	0
41	3.3
42	3.3
43	3.3
44	3.3
45	3.2
46	2.3
47	0
48	2.1
49	2.3
50	3.3
51	0
52	0
53	3.3
54	2.1
55	2.1
56	0
57	2.1
58	2.1
59	0
60	3.3
61	2.1
62	2.1
63	0
64	2.1
65	2.1
66	0
67	3.3
68	2.1
69	2.1
70	0
71	2
72	2
73	0
74	3.3
75	2.1
76	2.2
77	3.3
78	3.3
79	0
80	1.7
81	2.2
82	3.3
83	0
84	0
85	0
86	0
87	0
88	0
89	0
90	0

Pin	Voltage (V)
91	3.3
92	0
93	0
94	3.3
95	0
96	3.3
97	3.3
98	5
99	5
100	1.7
101	0.4
102	1.7
103	1.7
104	3.3
105	0
106	0
107	1.7
108	1.7
109	-
110	3.3
111	0
112	3.3
113	3.3
114	3.3
115	3.3
116	0
117	3.3
118	3.3
119	0
120	1.7
121	3.3
122	3.3
123	3.3
124	0
125	0
126	1.7
127	0
128	20m
129	3.1
130	3.3
131	0
132	3.1
133	3.3
134	3.1
135	0.2
136	0
137	1
138	2.6
139	0
140	1
141	0.6
142	0.7
143	0
144	3.3
145	2.2
146	1.2
147	0
148	1
149	1
150	1
151	0
152	1
153	2.5
154	0
155	0
156	0
157	3.3
158	3.3
159	0.8
160	1
161	1
162	0
163	0.1
164	3.3
165	1
166	3.3
167	3.3
168	3.3
169	3.3
170	3.3
171	3.3
172	3.3
173	3.3
174	1.4
175	0
176	0
177	3.3
178	3.3
179	3.3
180	4.1

Pin	Voltage (V)
181	3.3
182	0
183	3.3
184	0
185	3.3
186	0
187	0
188	0
189	0
190	3.3
191	0
192	3.3
193	3.3
194	3.3
195	3.3
196	3.3
197	3.3
198	3.3
199	3.3
200	3.3
201	3.3
202	3.3
203	3.3
204	3.1
205	3.3
206	3.3
207	1.5
208	3.3

A 5/10 MAIN ASSY

IC5402 (XC2S15-5TQ144C)

Pin	Voltage (V)
1	3.3
2	2.5
3	5
4	3.3
5	3.3
6	3.3
7	3.3
8	0
9	2.5
10	3.3
11	2.4
12	30m
13	2.8
14	2.5
15	0
16	3.3
17	0
18	1.7
19	3.4
20	2.4
21	0
22	0
23	0
24	2.5
25	0
26	0
27	0
28	0
29	0
30	3.3
31	3.3
32	2.5
33	0
34	0
35	3.3
36	3.3
37	3.3
38	0
39	2.2
40	0
41	0
42	0.2
43	0
44	2.2
45	0
46	2.2
47	0
48	0
49	2.2
50	0
51	3.3
52	0
53	3.3
54	3.3
55	2.5
56	0
57	2.2
58	0
59	3.3
60	2.2
61	0
62	2.2
63	3.3
64	0.6
65	3.3
66	3.3
67	2.1
68	3.1
69	3.3
70	3.3
71	3.3
72	3.3

Pin	Voltage (V)
73	0
74	3.3
75	0
76	0
77	0
78	10m
79	0
80	0
81	0
82	2.5
83	0
84	0
85	0
86	0
87	3.3
88	0
89	0
90	3.3
91	1.6
92	2.5
93	0
94	0
95	0
96	0
97	2.5
98	0
99	0
100	0
101	0.8
102	0
103	0
104	1
105	1
106	3.1
107	3.3
108	3.3
109	0
110	0
111	3
112	3.3
113	0
114	3.3
115	3.3
116	0
117	3.3
118	3.3
119	0
120	3.3
121	3.3
122	3.3
123	3.3
124	3.3
125	2.5
126	3.3
127	3.3
128	0
129	3.3
130	3.3
131	3.3
132	0
133	3.3
134	3.3
135	0
136	3.3
137	3.3
138	0
139	0
140	0
141	0
142	2.5
143	0
144	3.4

A 7/10 MAIN ASSY

IC7001
(BCM7040KQL)

• Input : Color-bar signal

Pin	Voltage (V)	Pin	Voltage (V)
1	3.3	91	1.5
2	3.3	92	0
3	3.3	93	0.2
4	3.3	94	0.4
5	3.3	95	0.6
6	1.7	96	0.8
7	0	97	0.8
8	1.8	98	0.8
9	2.4	99	0.8
10	2.6	100	0.8
11	-	101	40m
12	-	102	40m
13	3.3	103	1.8
14	-	104	0
15	-	105	0.8
16	2.5	106	1.1
17	2.3	107	0.8
18	2.2	108	0
19	2.3	109	0.9
20	0	110	0.8
21	2.3	111	1.8
22	2.4	112	1.3
23	1.8	113	1.3
24	2.3	114	1.6
25	2.4	115	1.4
26	2.3	116	1.9
27	2.3	117	0
28	2.4	118	3.3
29	2.4	119	1.1
30	2.4	120	1.7
31	2.4	121	1.1
32	2.4	122	0.8
33	2.4	123	0.9
34	2.5	124	0.8
35	3.3	125	1.4
36	3.3	126	0
37	3.3	127	1.5
38	3.3	128	1.5
39	3.3	129	0
40	1.8	130	2
41	3.3	131	3.3
42	3.3	132	0
43	3.3	133	1.8
44	0	134	1.6
45	1.8	135	1.3
46	3.2	136	1.4
47	1.5	137	1.3
48	2.4	138	1.6
49	2.4	139	1.4
50	2.3	140	1.4
51	2.4	141	2.2
52	2.3	142	1.4
53	2.4	143	1.1
54	2.3	144	1.4
55	2.3	145	1.4
56	2.3	146	1.6
57	2.3	147	1.8
58	2.3	148	1.5
59	2.3	149	1.7
60	2.3	150	1.2
61	2.3	151	1.2
62	2.3	152	0
63	2.3	153	1.2
64	0	154	1.3
65	2.3	155	3.3
66	3.3	156	1.2
67	3.3	157	1.2
68	0	158	1
69	0	159	1
70	-	160	0.9
71	2.7	161	1.4
72	0	162	0
73	-	163	1.7
74	3	164	0
75	0	165	3.3
76	-	166	0
77	3.3	167	0
78	0	168	0
79	1.4	169	1.7
80	1.7	170	1.7
81	0	171	1.4
82	3.3	172	0
83	0	173	3.3
84	3.3	174	0
85	1.7	175	1.8
86	1.5	176	0
87	1.8		
88	0		
89	3.3		
90	1.2		

A 8/10 MAIN ASSY

IC8501
(MSP4448G-FH-A2)

• Audio signal : 1kHz

Pin	Voltage (V)
1	3.3
2	3.3
3	1.7
4	1.7
5	2.5
6	0.5
7	-
8	-
9	-
10	5
11	0
12	0
13	-
14	0
15	0
16	5
17	2.1
18	2.1
19	0
20	70m
21	70m
22	-
23	-
24	-
25	3.8
26	3.8
27	0
28	3.8
29	3.8
30	6.4
31	6.4
32	7.2
33	0
34	3.8
35	3.8
36	3.8
37	0
38	3.8
39	3.8
40	0
41	3.8
42	3.8
43	0
44	3.8
45	3.8
46	2.7
47	3.8
48	0
49	5
50	1.6
51	1.6
52	30m
53	0
54	0
55	2.2
56	-
57	2.6
58	-
59	0.2
60	5
61	0
62	-
63	5
64	-

A 8/10 MAIN ASSY

IC8801
(SAA7115HL/V1)

• Input : Color-bar signal

Pin	Voltage (V)	Pin	Voltage (V)
1	3.3	51	3.3
2	0.12	52	3
3	2.4	53	2.8
4	60m	54	1.4
5	0	55	0.9
6	1.6	56	1
7	1.5	57	1
8	3.3	58	3.3
9	0	59	1.2
10	-	60	1.7
11	3.3	61	1.4
12	0.9	62	1.3
13	1	63	0
14	0.2	64	30m
15	0	65	40m
16	50m	66	40m
17	3.2	67	40m
18	40m	68	3.3
19	1	69	-
20	1	70	40m
21	0	71	40m
22	0.8	72	30m
23	3.3	73	2.4
24	0	74	2.4
25	3.3	75	3.3
26	0	76	0
27	3.3	77	2.4
28	40m	78	0.4
29	20m	79	2.4
30	3.3	80	3.3
31	3.3	81	1.6
32	3.3	82	0.9
33	3.3	83	3.3
34	3.3	84	1
35	4m	85	1.2
36	4m	86	1
37	-	87	1.1
38	0	88	0
39	-	89	1.2
40	3m	90	1.3
41	0	91	20m
42	3.3	92	2.7
43	3.3	93	3.3
44	40m	94	1.7
45	1.7	95	0.2
46	2.8	96	3.3
47	3.3	97	0
48	1.7	98	2.4
49	0	99	2.4
50	0	100	0

3.19 VOLTAGES_3

A 9/10 MAIN ASSY

IC9001
(FLI2301-BC)

• Input : Color-bar signal

Pin	Voltage (V)
1	0
2	0
3	0
4	0
5	0
6	0
7	0
8	3.3
9	0
10	0
11	0
12	0
13	0
14	0
15	0
16	1.9
17	0
18	0
19	0
20	0
21	0
22	0
23	0
24	0
25	0
26	0
27	0
28	0
29	0
30	3.3
31	0
32	0
33	0
34	0
35	0
36	1.9
37	0
38	0
39	0
40	0
41	0
42	0
43	0
44	0
45	3.3
46	3.3
47	3.3
48	3.3
49	0
50	0.9
51	0.6
52	0.8
53	0.7
54	0.7
55	0.7
56	0.8
57	1.5
58	1.2
59	1.3
60	1.9
61	1.2
62	3.3
63	0
64	1.3
65	0.9
66	0.9
67	0.5
68	1.9
69	0
70	0.9
71	0.7
72	0.8
73	0.8
74	0.8
75	0.8
76	0.6
77	1.5
78	1.2
79	1.3
80	1.9
81	0
82	1.9
83	1.2
84	1.3
85	0.8
86	0.9
87	0.5
88	3.3
89	0
90	0

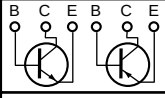
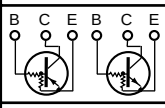
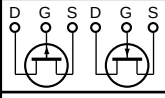
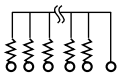
Pin	Voltage (V)
91	0.3
92	0.3
93	0.4
94	0.8
95	0.8
96	1.9
97	0
98	0.8
99	0.8
100	0
101	0.7
102	0.7
103	0.7
104	3.3
105	3.1
106	3.1
107	2.5
108	2.5
109	2.9
110	0
111	1.5
112	3.3
113	0
114	1.5
115	0
116	1.7
117	-
118	3
119	3.3
120	3.3
121	0
122	2.5
123	1.9
124	0
125	1.6
126	1
127	0.9
128	3.3
129	0
130	0.9
131	0.9
132	1
133	1
134	0.9
135	2.4
136	0.7
137	1
138	1.8
139	0
140	1
141	1
142	0.9
143	1
144	1
145	2.3
146	3.3
147	0
148	1.6
149	1
150	1.4
151	0.9
152	2.9
153	1.2
154	1.2
155	0.12
156	3.3
157	1.9
158	0
159	0
160	1.9
161	1.9
162	0
163	0
164	1.9
165	1.9
166	0
167	0
168	1.9
169	0
170	1.2
171	3.2
172	0
173	0.5
174	3.2
175	0
176	1.2
177	3.2
178	0
179	2.2
180	1.3

Pin	Voltage (V)
181	1.3
182	1.3
183	3.3
184	0
185	0
186	3.3
187	3.3
188	0
189	0
190	0
191	1.4
192	2
193	3.3
194	0
195	1.4
196	1.3
197	1.9
198	0
199	1.6
200	1.8
201	1.3
202	1.5
203	1.2
204	1.2
205	1.5
206	0
207	0
208	0

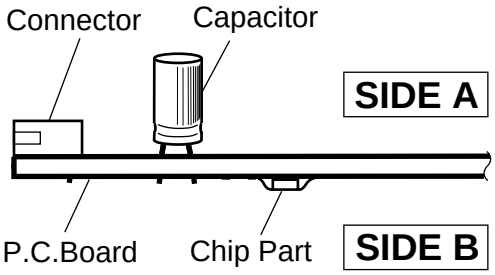
4. PCB CONNECTION DIAGRAM

NOTE FOR PCB DIAGRAMS :

1. Part numbers in PCB diagrams match those in the schematic diagrams.
2. A comparison between the main parts of PCB and schematic diagrams is shown below.

Symbol In PCB Diagrams	Symbol In Schematic Diagrams	Part Name
		Transistor
		Transistor with resistor
		Field effect transistor
		Resistor array
		3-terminal regulator

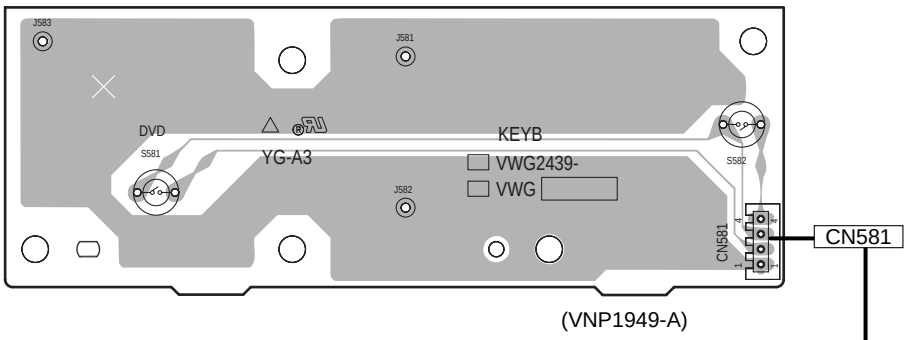
3. The parts mounted on this PCB include all necessary parts for several destinations.
   For further information for respective destinations, be sure to check with the schematic diagram.
4. View point of PCB diagrams.



4.1 FLKY, LEDB and KEYB ASSYS

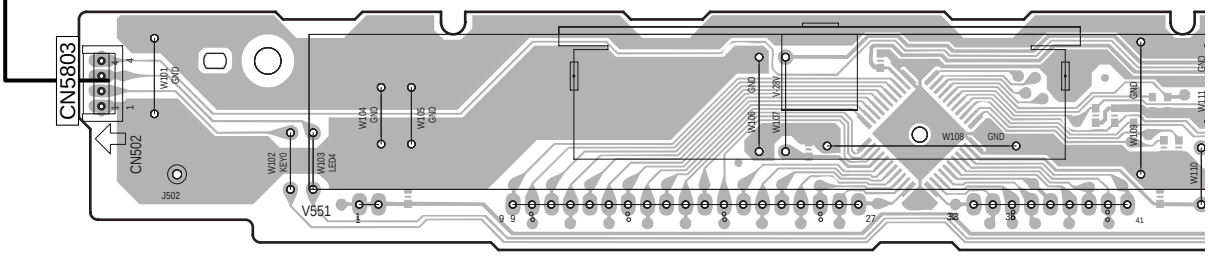
SIDE A

D KEYB ASSY



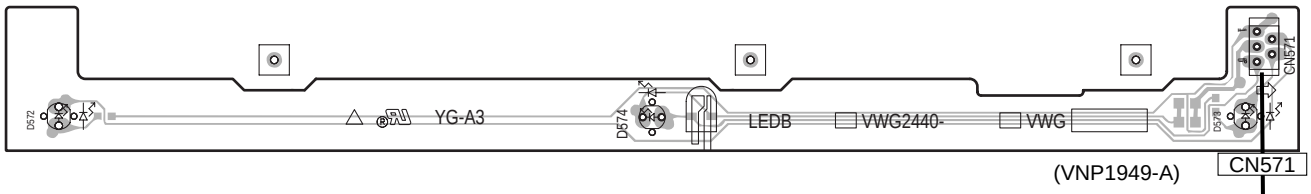
(VNP1949-A)

B FLKY ASSY



SIDE A

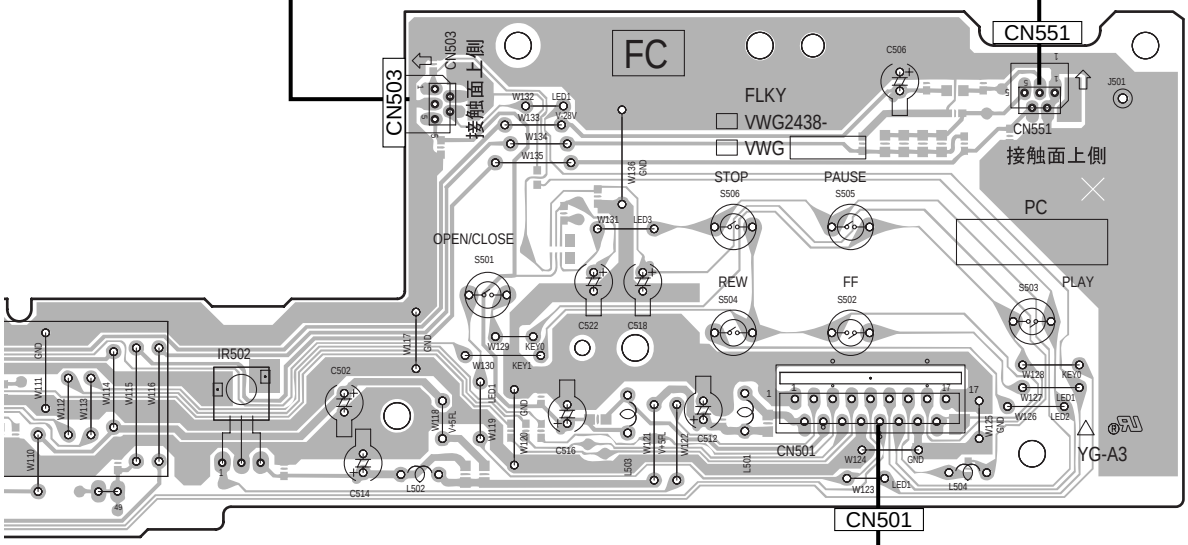
C LEDB ASSY



(VNP1949-A)

CN571

E CN204

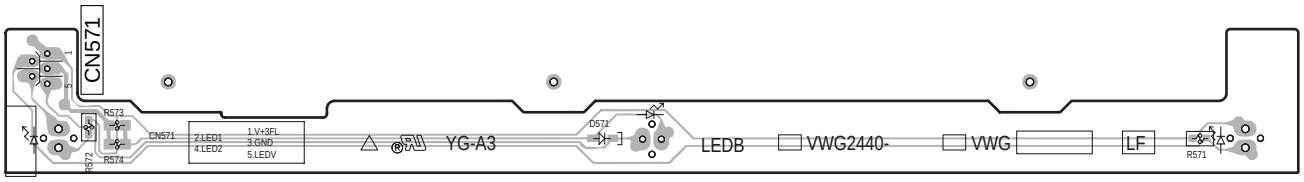


(VNP1949-A)

A CN4801

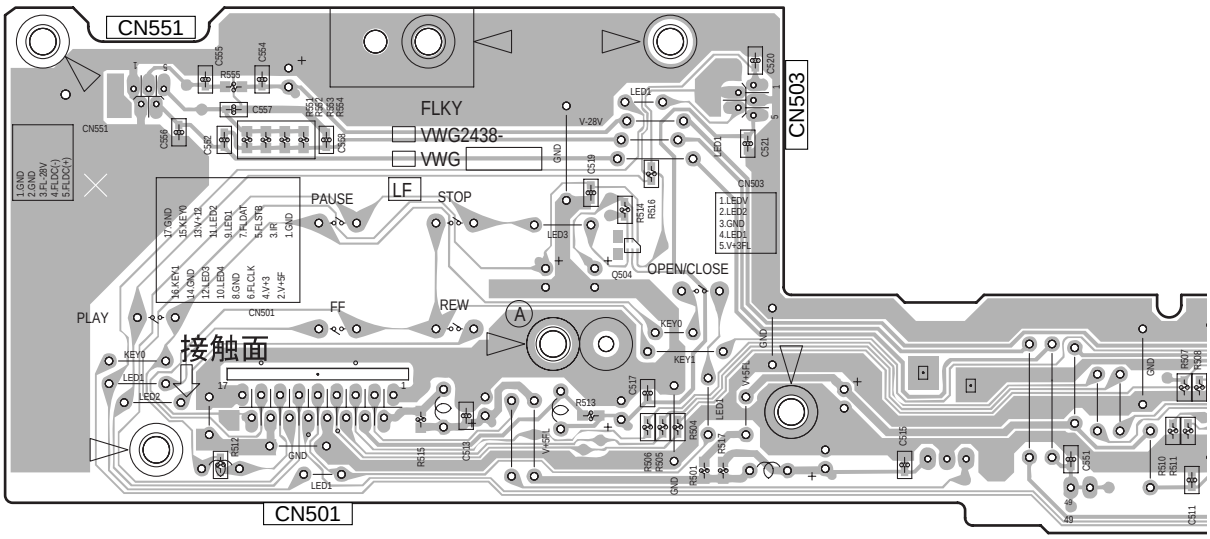
SIDE B

C LEDB ASSY



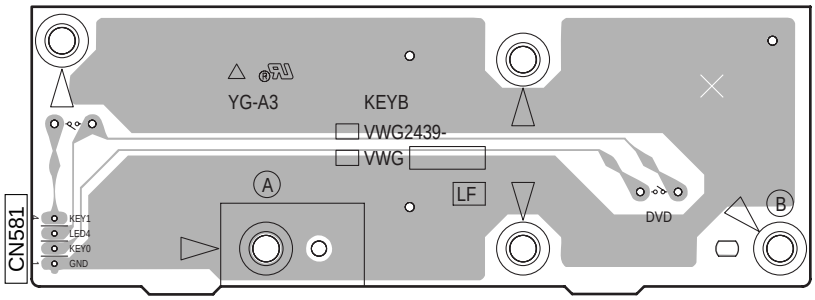
(VNP1949-A)

B FLKY ASSY

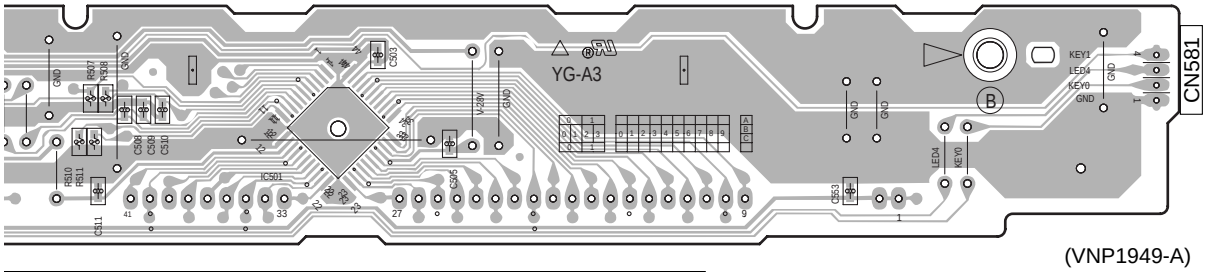


SIDE B

D KEYB ASSY



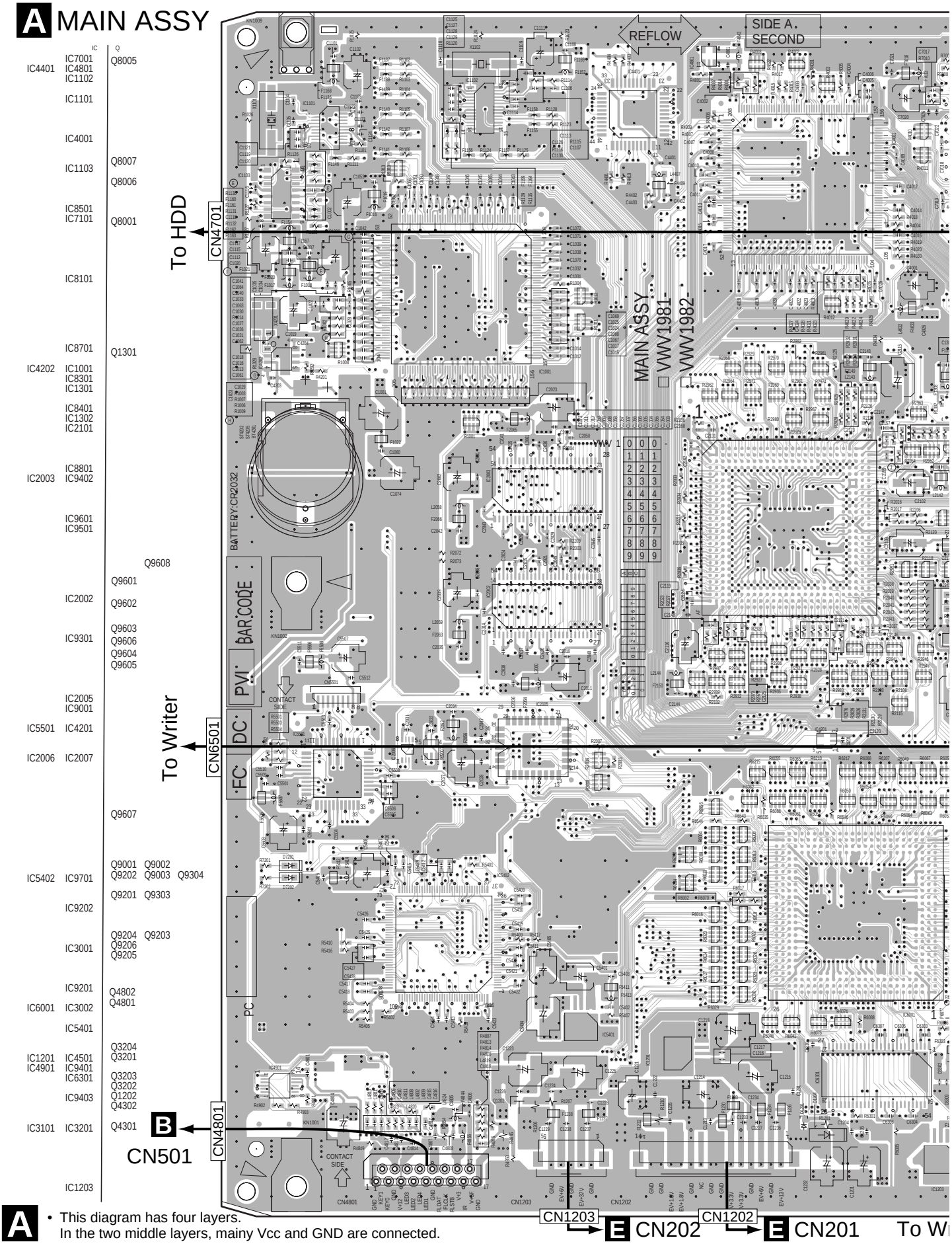
(VNP1949-A)



(VNP1949-A)

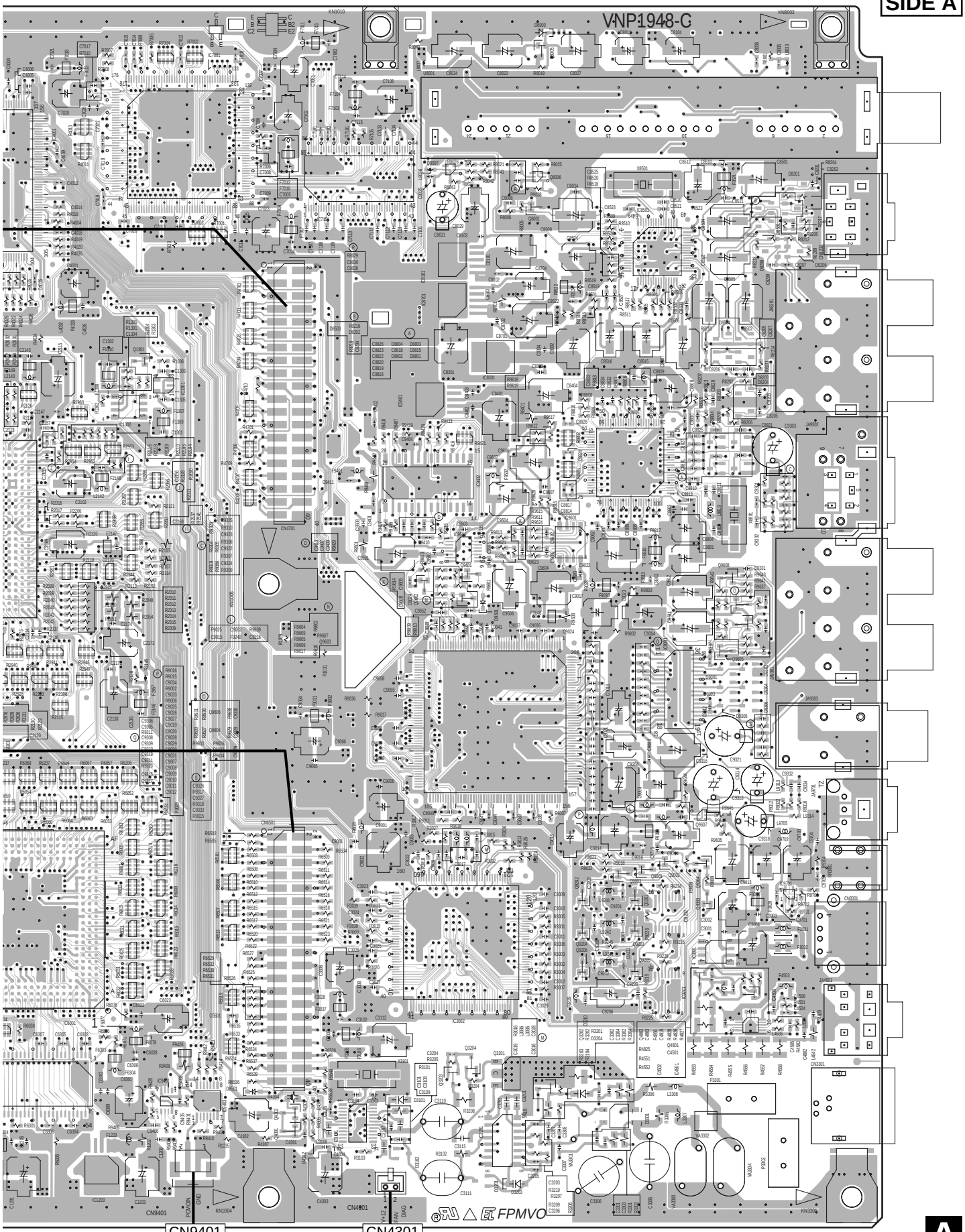
IC501

4.2 MAIN ASSY

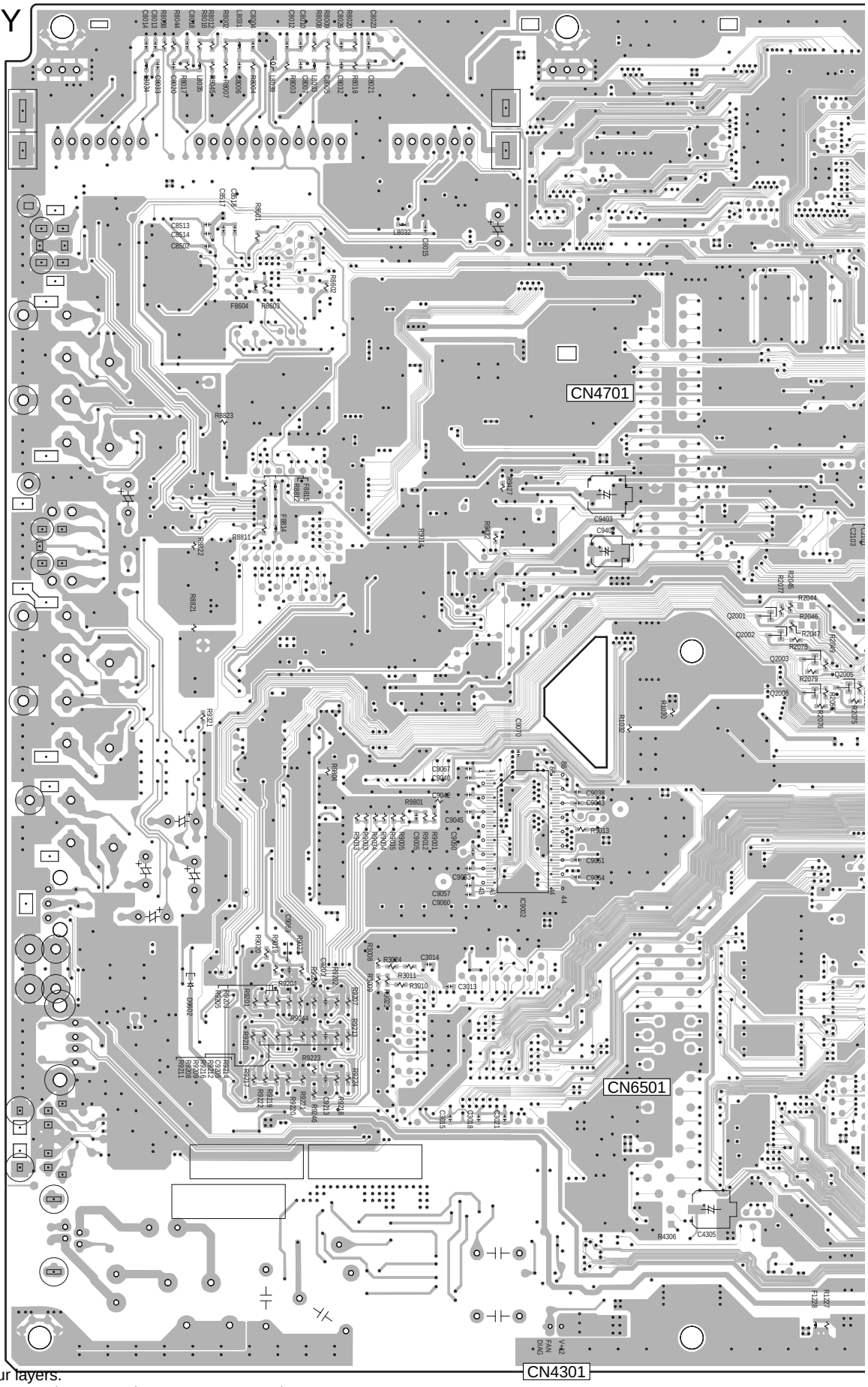


A • This diagram has four layers.
In the two middle layers, mainy Vcc and GND are connected.

SIDE A

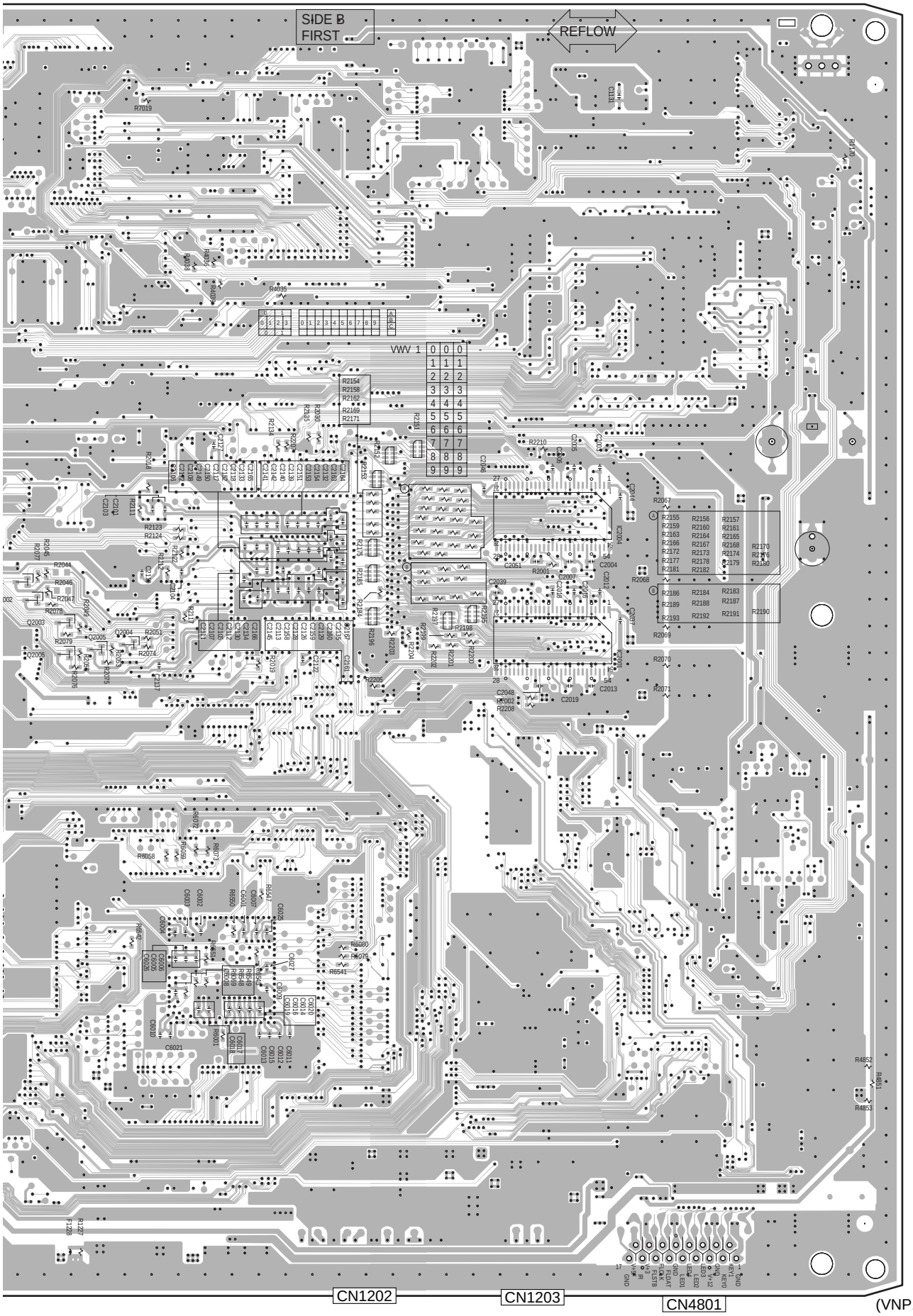


A MAIN ASSY



A • This diagram has four layers.
In the two middle layers, mainy Vcc and GND are connected.

SIDE B



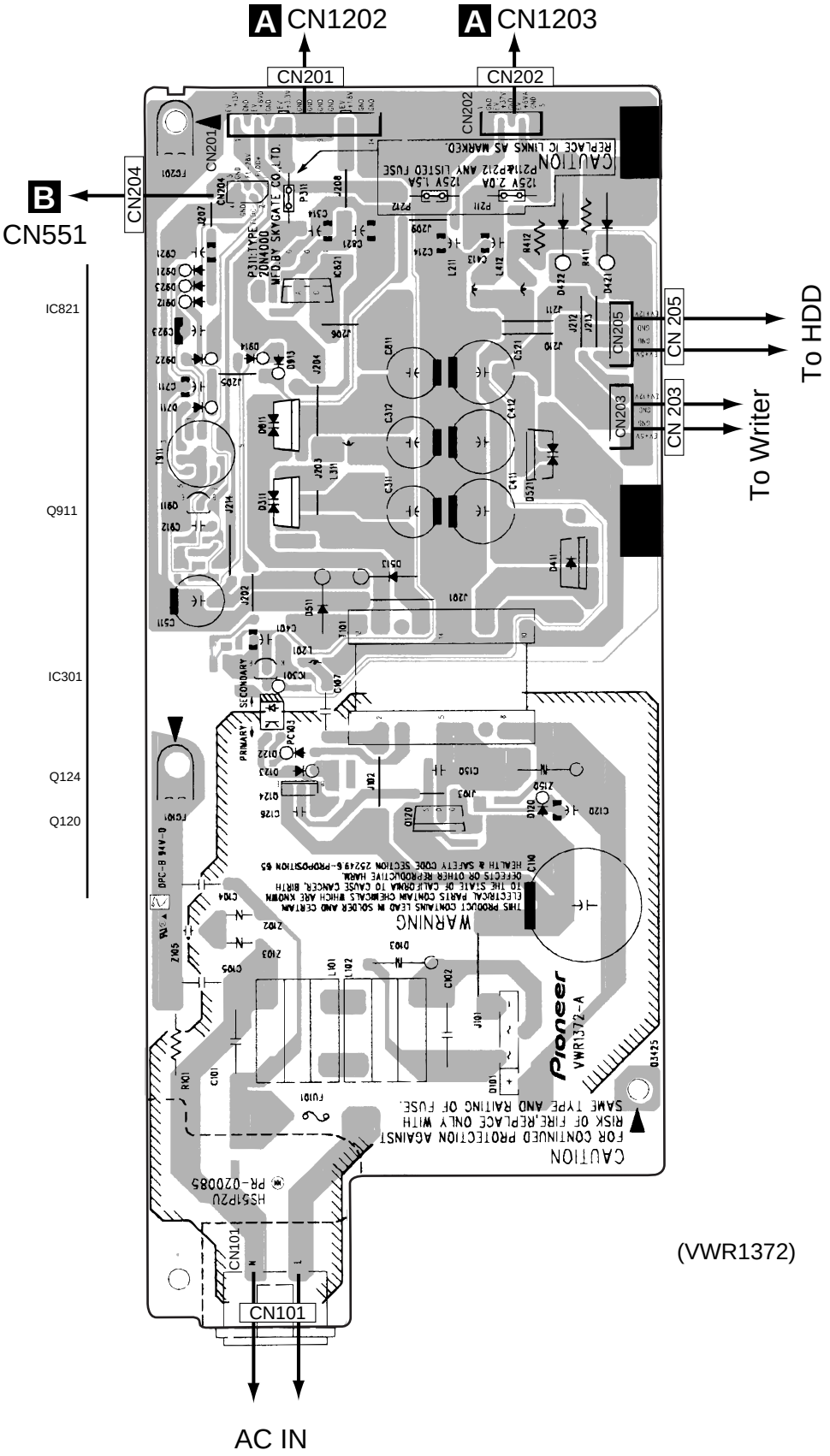
(VNP1948-C) **A**

4.3 POWER SUPPLY ASSY

SIDE A

SIDE A

E POWER SUPPLY ASSY



5. PCB PARTS LIST

NOTES:
- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *When ordering resistors, first convert resistance values into code form as shown in the following examples.*

Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J=5%, and K=10%).

560 Ω	→	*56 x 10^1* →	*561* ·····	*RD1/4PU 5 6 1 J*
47k Ω	→	*47 x 10^3* →	*473* ·····	*RD1/4PU 4 7 3 J*
0.5 Ω	→	*R50* ·····		*RN2H R 5 0 K*
1 Ω	→	*1R0* ·····		*RS1P 1 R 0 K*

Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62k Ω	→	*562 x 10^1* →	*5621* ·····	*RN1/4PC 5 6 2 1 F*

LIST OF WHOLE PCB ASSEMBLIES

Mark	Symbol and Description	DVR-810H-S /KU	DVR-57H /KU
NSP	1..FLKB ASSY	VWM2214	VWM2214
	2..FLKY ASSY	VWG2438	VWG2438
NSP	2..KEYB ASSY	VWG2439	VWG2439
NSP	2..LEDB ASSY	VWG2440	VWG2440
	1..MAIN ASSY	VWV1981	VWV1982
⚠	1..POWER SUPPLY ASSY	VWR1372	VWR1372

A MAIN ASSY

VWV1981 and VWV1982 are constructed the same except for the following :

Mark	Symbol and Description	VWV1981	VWV1982
	CN8202 4PMINI DIN SOCKET	AKP7045	AKP7050
	JA8201 6P PIN JACK	VKB1200	VKB1199
	JA9301 6P PIN JACK	VKB1200	VKB1199
	JA9302 4P MINI DIN SOCKET	AKP7117	AKP7116
	JA9303 3P PIN JACK	VKB1165	VKB1198

Mark	No.	Description	Part No.

B FLKY ASSY

SEMICONDUCTORS

	IC501	PT6315
	Q504	RN4903

SWITCHES AND RELAYS

	S501-S506	VSG1024

CAPACITORS

	C502, C512, C514, C516	CEJQ101M6R3
	C506, C518	CEJQ220M35
	C513, C517, C519	CKSRYB103K50
	C503, C511, C515	CKSRYF104Z25
	C505, C551, C553	CKSRYF104Z50

RESISTORS

	Other Resistors	RS1/16S###J

OTHERS

	CN502 FJ 4P CONNECTOR	04R-FJ
	CN501 17P FFC CONNECTOR	52492-1720
	IC502 REMOTE RECEIVER UNIT	RPM7138-H4
	V551 FL TUBE	VAW1081
	CN503, CN551 5P FFC CONNECTOR	VKN1265
	0 FL HOLDER	VNF1120

D KEYB ASSY

SWITCHES AND RELAYS

	S581	VSG1024

OTHERS

	CN581 FJ 4P CONNECTOR	04P-FJ

C LEDB ASSY

SEMICONDUCTORS

	D574 LED (Blue)	SLR-343BBT
	D572 LED (Orange)	SLR-343DC
	D573 LED (Red)	SLR-343VC

RESISTORS

	Other Resistors	RS1/16S###J

OTHERS

	CN571 5P FFC CONNECTOR	VKN1236

A MAIN ASSY

SEMICONDUCTORS

	IC4501	ADM101EARM
	IC1302	ADM708SAR
	IC4401	AT90SC6464C-AL
	IC8301	BA178M08FP
	IC2101	BCM7020RKPB1-D0
	IC7001	BCM7040KQL
	IC4001	CASC-00003-000
	IC9402	CS8420-CS
	IC9001	FLI2301
	IC1101	ICS650R-22
	IC6301	K4S641632F-TC75
	IC9301	LA73054
	IC3001	LM3526M-H
	IC4202	M41T00M6
	IC1103	MK2745-24S
	IC1102	MK2745-27R
	IC8501	MSP4448G-FH-A2
	IC7101, IC9002	MT48LC2M32B2TG-6F
	IC2001-IC2004	MT48LC8M16A2TG-75F
	IC9501	PCM1742KE
	IC6001	PE5337A
	IC2005	PEA005A8
	IC5401	PQ025EZ01ZP
	IC8701	PQ033EZ01ZP
	IC1201, IC8101, IC8401	PQ05DZ51
⚠	IC1203	PQ12DZ51
	IC8801	SAA7115HL/V1
	IC3101	SI2433-KTR-REVF
	IC3201	SI3015-KSR-REVD
	IC2007	SN74AHC1G04DBV
	IC2006	SN74AHC2G32HDCT
	IC9401	SN74AHC2G53HDCT
	IC1301	SN74AHCT1G125DBV
	IC9202	SN74LV4053APW
	IC4201	TC74A5-3.3VCT
	IC9403	TC74VHC14FT
	IC4901	TC74VHCT125AFT
	IC9601	UPC4570G2
	IC1001	UPD30541GD167H
	IC3002	UPD720100AGM-8EY
	IC5402	XC2S15-5TQ144C
	Q4802	2SA1036K
	Q9001-Q9003, Q9201-Q9206	2SA1576A
⚠	Q1202	2SC2411K
	Q4301, Q4302	2SC2411K
	Q1301, Q4801	2SC4081
⚠	Q8005	2SC4081
	Q9604-Q9606, Q9608	2SD2114K
	Q3201	BCP56T1
	Q9303	DTA124EUA
	Q9601	DTC124EUA
	Q9607	HN1B04FU
	Q3202, Q3204	MMBTA42LT1
	Q3203	MMBTA92LT1
⚠	D1204	1SR154-400
⚠	D9602	1SS355
	D3301	CBRHD-06
	D8501-D8504, D8801-D8804	DA204K
	D3102, D3201	DAN217
	D3204	RLZ20B
	D3101, D3203	RLZ5.6B
	D8000	UDZS33B

COILS AND FILTERS

	F1307, F1308, F3106, F4503	DTF1069
⚠	F4844, F4855	DTF1069
	F4856, F5507, F8523, F8524	DTF1069
	F8817, F8818, F9024-F9026	DTF1069
	L3035, L3036	DTL1034
⚠	L3307, L3308	DTL1034
	L9705	LCTAW100J2520

Mark	No.	Description	Part No.
	L9241-L9243		LCTAW8R2J2520
	F9240, F9401, F9502		VTF1096
	F1019-F1022		VTF1170
⚠	F1167-F1169		VTF1170
	F1230, F1232-F1234, F1236-F1238		VTF1170
	F2062-F2066, F2146-F2150, F3037		VTF1170
	F4033, F5411, F5412, F6078, F6303		VTF1170
	F9029-F9031		VTF1170
	F3029, F4409, F7015-F7018, F7104		VTF1171
	F3031, F3032		VTF1184
	L8031-L8033, L8036, L8037		VTL1079
	L4504, L4505, L4802, L4803		VTL1083
	L4808-L4811, L4819, L4820		VTL1083
	L4823, L4824		VTL1083
	L9313, L9314		VTL1089
	L8039		VTL1096
	L4842		VTL1101

CAPACITORS

	C1109, C1110, C8201-C8203, C8205	CCSRCH100D50
	C1023, C1034, C9602, C9609	CCSRCH101J50
	C9202, C9208, C9212	CCSRCH120J50
	C8811, C8812, C9332-C9334	CCSRCH150J50
	C3103, C3104, C4504, C4505	CCSRCH330J50
	C4809-C4818, C4820, C8206-C8209	CCSRCH330J50
	C9322-C9327	CCSRCH330J50
	C1028	CCSRCH470J50
	C1029, C9328-C9331	CCSRCH471J50
	C8007, C8034, C8517, C8518	CCSRCH560J50
	C9605, C9608	CCSRCH681J50
	C9201, C9207, C9211	CCSRCH8R0D50
	C9018, C9021	CEVW100M16
	C8503-C8506	CEVW100M50
	C1201, C1203, C1218, C1223, C1225	CEVW101M16
	C1232, C4302, C4303, C4305, C8302	CEVW101M16
	C8404, C8501, C8507, C8701, C9204	CEVW101M16
	C9304, C9316, C9501, C9504, C9506	CEVW101M16
	C9604, C9606, C9611-C9613	CEVW101M16
	C1002, C1019, C1036, C1102, C1111	CEVW101M4
	C1115, C1214, C1221, C2002, C2009	CEVW101M4
	C2011, C2023, C2027, C2102, C2109	CEVW101M4
	C2115, C2116, C2138, C2173, C3006	CEVW101M4
	C4001, C5401, C5405, C5408, C6023	CEVW101M4
	C6301, C7001, C7002, C7020, C7023	CEVW101M4
	C7106, C8704, C8801, C8804, C8809	CEVW101M4
	C9001, C9003, C9013, C9014, C9017	CEVW101M4
	C9066, C9214	CEVW101M4
	C8515, C8516	CEVW220M16
	C8022, C8027	CEVW220M50
	C1001, C1074	CEVW221M4
	C3002, C3004, C8011, C8104, C8512	CEVW470M6R3
	C8524, C9402, C9702, C9703	CEVW470M6R3
	C3202	CKSQYB105K16
	C3106-C3108, C3201	CKSQYB224K25
	C8010, C8012, C8032, C8033	CKSRYB102K50
	C3204, C8204, C9407, C9413	CKSRYB103K50
	C9005, C9019, C9020, C9301, C9302	CKSRYB104K16
	C3203, C3205, C3206	CKSRYB104K25
	C3207	CKSRYB182K50
	C4304, C4802, C8514	CKSRYB332K50
	C3301, C3302	CKSRYB392K50
	C8820, C8823	CKSRYB473K25
	C9409	CKSRYB822K50
	C1003-C1018, C1021, C1024-C1027	CKSRYF104Z25
	C1030-C1033, C1038-C1052	CKSRYF104Z25
	C1054-C1059, C1061-C1073, C1204	CKSRYF104Z25
	C1208, C1213, C1216, C1217, C1222	CKSRYF104Z25
	C1224, C1226, C1231, C1236	CKSRYF104Z25
	C1301-C1305, C2028, C2031, C2032	CKSRYF104Z25
	C2034, C2047, C2120, C2121, C2174	CKSRYF104Z25
	C3001, C3003, C3007-C3029	CKSRYF104Z25
	C3101, C3102, C3105, C4002-C4026	CKSRYF104Z25
	C4201, C4204, C4401, C4402	CKSRYF104Z25
	C4501-C4503, C4506, C4803, C4805	CKSRYF104Z25
	C4807, C4819, C4901, C5402, C5403	CKSRYF104Z25
	C5406, C5407, C5409-C5413	CKSRYF104Z25
	C5415-C5429, C5501, C5502	CKSRYF104Z25
	C6001, C6002, C6004-C6006, C6008	CKSRYF104Z25
	C6010-C6013, C6015-C6018	CKSRYF104Z25
	C6020, C6021, C6025, C6027	CKSRYF104Z25
	C6303-C6307, C6309, C6310, C6501	CKSRYF104Z25
	C7005-C7019, C7022, C7024, C7025	CKSRYF104Z25
	C7101-C7105, C7107-C7113	CKSRYF104Z25
	C8014, C8015, C8102, C8303, C8304	CKSRYF104Z25
	C8402, C8403, C8502, C8508	CKSRYF104Z25
	C8510, C8511, C8513, C8519	CKSRYF104Z25
	C8522, C8523, C8525, C8527	CKSRYF104Z25
	C8702, C8703, C8802, C8803	CKSRYF104Z25
	C8805-C8808, C8813-C8819	CKSRYF104Z25
	C8821, C8822, C8824-C8828	CKSRYF104Z25
	C8830-C8834, C9052, C9203, C9205	CKSRYF104Z25
	C9213, C9215, C9216, C9305-C9312	CKSRYF104Z25
	C9315, C9317, C9319, C9401	CKSRYF104Z25
	C9404-C9406, C9408, C9411	CKSRYF104Z25
	C9502, C9503, C9505, C9507, C9508	CKSRYF104Z25
	C9603, C9607, C9704	CKSRYF104Z25
	C1228, C1237, C8021, C8023, C8026	CKSRYF104Z50
	C1020, C1022, C1035, C1037, C1053	CKSRYF105Z10
	C1060, C1101, C1103, C1108	CKSRYF105Z10
	C1112-C1114, C1116-C1131, C1227	CKSRYF105Z10
	C1229, C1233-C1235, C1238, C2001	CKSRYF105Z10
	C2003-C2008, C2010, C2012-C2022	CKSRYF105Z10
	C2024-C2026, C2029, C2030	CKSRYF105Z10
	C2035-C2046, C2048-C2051, C2101	CKSRYF105Z10
	C2103-C2108, C2110-C2114	CKSRYF105Z10
	C2117-C2119, C2122-C2137	CKSRYF105Z10
	C2139-C2172, C4806, C4808, C6003	CKSRYF105Z10
	C6007, C6009, C6014, C6019, C6022	CKSRYF105Z10
	C6026, C6028, C6302, C6308	CKSRYF105Z10
	C7003, C7004, C7021, C7026	CKSRYF105Z10
	C7114, C7115, C8103, C9002, C9004	CKSRYF105Z10
	C9006-C9012, C9015, C9016	CKSRYF105Z10
	C9023-C9031, C9033-C9051	CKSRYF105Z10
	C9053-C9061, C9064, C9065	CKSRYF105Z10
	C9067-C9070	CKSRYF105Z10
	C9410	CKSRYF474Z16
⚠	C3110, C3111 150pF	VCG1040
⚠	C3305, C3306 1000pF	VCG1041
	C3303, C3304 560pF/250	VCG1042
	C3113 (22000pF/250)	VCG1043

Mark	No.	Description	Part No.
	C8520, C8521	3.3pF/50	VCG1044
	C9303, C9313, C9321	1000uF/6.3	VCH1250
	C9314, C9318	470uF/6.3	VCH1251

RESISTORS

	R4002, R6074, R7003		RAB4C0R0J
	R6206, R6209, R6214, R6216, R6501		RAB4C102J
	R6506, R6507, R6513, R6519, R6524		RAB4C102J
	R2006, R2008, R2133, R4003, R4008		RAB4C103J
	R4010-R4012, R6031-R6033, R6049		RAB4C103J
	R6067, R6068, R6203, R6204, R6207		RAB4C103J
	R6212, R6215, R6217		RAB4C103J
	R6003-R6016, R6018-R6030, R6041		RAB4C220J
	R6048, R6050-R6057, R6060-R6066		RAB4C220J
	R2151-R2153, R2175, R2185		RAB4C330J
	R2195-R2197, R2926-R2939		RAB4C330J
	R2941, R2942, R2944-R2947		RAB4C330J
	R2950-R2964, R2967-R2971, R2974		RAB4C330J
	R2980-R2982, R4702-R4705		RAB4C330J
	R4707, R4708, R4711, R7002, R7004		RAB4C330J
	R8801, R8802, R9421		RAB4C330J
	R1001, R1008, R1010-R1012, R2103		RAB4C472J
	R2108, R2115, R2118, R2126, R7001		RAB4C472J
	R4706		RAB4C820J
	R9614, R9622		RN1/16SE1002D
	R9613, R9621		RN1/16SE1501D
	R9611, R9624		RN1/16SE2202D
	R1014, R3305, R3306, R4845, R8401		RS1/10S0R0J
	R8701, R9014, R9408, R9409, R9501		RS1/10S0R0J
	R9608		RS1/10S0R0J
	R1002, R3101, R3102		RS1/10S100J
	R3303, R3304		RS1/10S106J
	R3203		RS1/10S222J
	R1206		RS1/10S331J
	R4304, R4306		RS1/10S4R7J
	R3301, R3302		RS1/10S563J
	R2015, R8804		RS1/16S1001F
	R3202		RS1/16S1003F
⚠	R4854		RS1/16S102J
	R2009-R2014		RS1/16S1200F
	R3210		RS1/16S12R0F
	R3008, R3009, R3013, R3014		RS1/16S1502F
	R9415		RS1/16S1601F
	R9420		RS1/16S1800F
	R2043		RS1/16S3300F
	R4303		RS1/16S3301F
	R3010-R3012, R3015		RS1/16S33R0F
	R3207		RS1/16S3900F
	R2120		RS1/16S61R9F
	R8203-R8205, R8208, R9003-R9005		RS1/16S75R0F
	R9307-R9310, R9312, R9315-R9318		RS1/16S75R0F
	R3016		RS1/16S9101F
	R3206		RS1/16S9311F
	R4551-R4558		RS1/4S2R7J
	R3201, R3208	1.78k 1/4W	VCN1132
	R3023-R3026	2.7ohm 1/16W	VCN1133
	Other Resistors		RS1/16S###J

OTHERS

	CN4801	17P FFC CONNECTOR	9604S-17C
	CN8202	4P MINI DIN SOCKET	AKP7045
	JA9302	4P MIN DIN SOCKET	AKP7117
⚠	CN1202	PH CONNECTOR	B14B-PH-SM3
	CN9401	PH CONNECTOR	B2B-PH-SM3
	CN1203	PH CONNECTOR	B5B-PH-SM3
	CN3001	USB CONNECTOR	BKP1134
	X4201	CR. RESO. (32.76MHz)	BSS1115
	VA3302	SURGE ABSORBER	DSSA-P3100SB
	VA3301	SURGE ABSORBER	ERZV07D271CS
⚠	VA3303, VA3304	SURGE ABSORBER	ERZV10D471CS
	JA9701	OPT. LINK OUT 12MB/S	GP1FA502TZ
	CN4301	2P PLUG	KM200SA2
	P3301, P3302	POLY SWICH	TR600-150-RB
⚠	BT4201	LITHIUM BATTERY	VEM1033
	JA9303	3P PIN JACK	VKB1165
	JA8201, JA9301	6P PIN JACK	VKB1200
	CN4701	40P PIN HEADER	VKN1804
⚠	CN6501	40P PIN HEADER	VKN1804
	JA4501	DUAL MINI JACK	VKN1807
⚠	CN3301	MODULAR CONNECTOR	VKN1808
	KN3001	SCREW PLATE	VNE1948
	KN1009, KN1010, KN8002	WRAPPING TERMINAL	VNF1084
	KN1001, KN1002, KN1004, KN1005		VNF1109
	KN3301	EARTH TERMINAL	VNF1109
	X1102	CR. RESO. (27MHz)	VSS1191
	X8801	CR. RESO. (24.57MHz)	VSS1192
	X3101	CR. RESO. (4.91MHz)	VSS1193
	X8501	CR. RESO. (18.43MHz)	VSS1194
	U8001	TV TUNER PACK	VXF1025

E POWER SUPPLY ASSY

SEMICONDUCTORS

⚠	P211	(2A)	VEK1078
⚠	P212	(1.5A)	VEK1079
⚠	P311	(4A)	VEK1076
⚠	D513		VZF1127
	D103		UNK1V26

FUSE RESISTORS

⚠	R411, R412		VZC1067

6. ADJUSTMENT

• There is no information to be shown in this chapter.

7. GENERAL INFORMATION

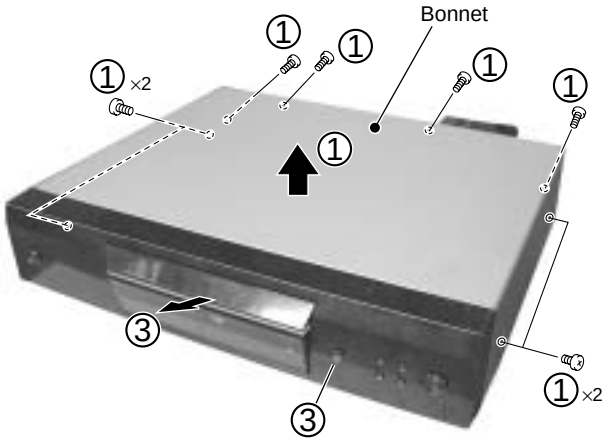
7.1 DIAGNOSIS

7.1.1 DISASSEMBLY

DIAGNOSIS OF PCBs

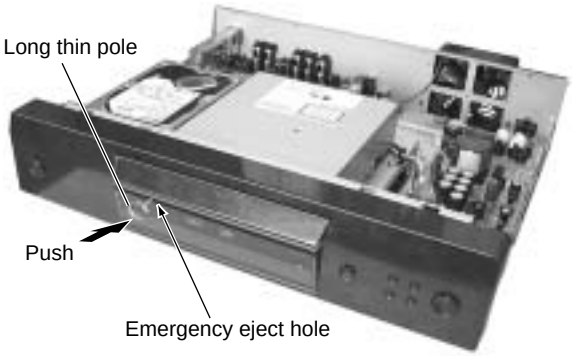
Note: For performing the diagnosis shown below, the following jig cables for service are required:
- GGD1365

① Remove bonnet by removing the eight screws.
② Plug the AC power cord into the AC socket to turn on the power.
③ Press the ⏏ (OPEN/CLOSE) button to open the tray.

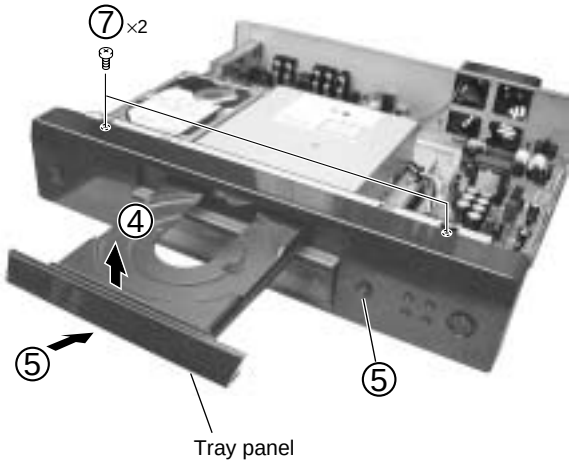


● How to open the Tray when the power cannot be on

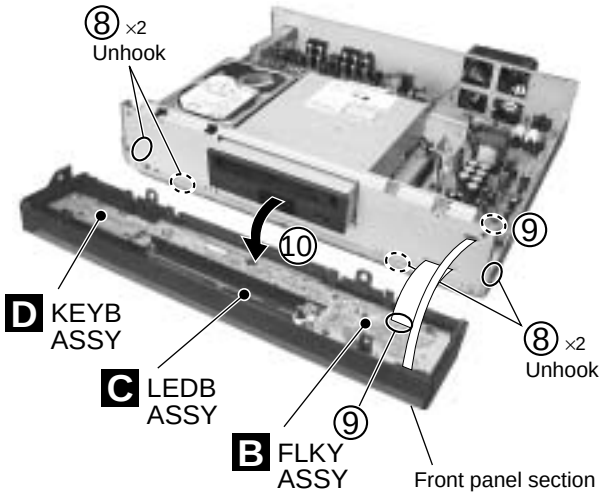
When the player cannot eject disc tray due to power failure or any other reasons, use a long thin pole and push the emergency eject hole on the front panel to eject.



④ Remove the tray panel.
⑤ Press the ⏏ (OPEN/CLOSE) button to close the tray.
⑥ Unplug the AC power cord to turn off the power.
⑦ Remove the two screws.

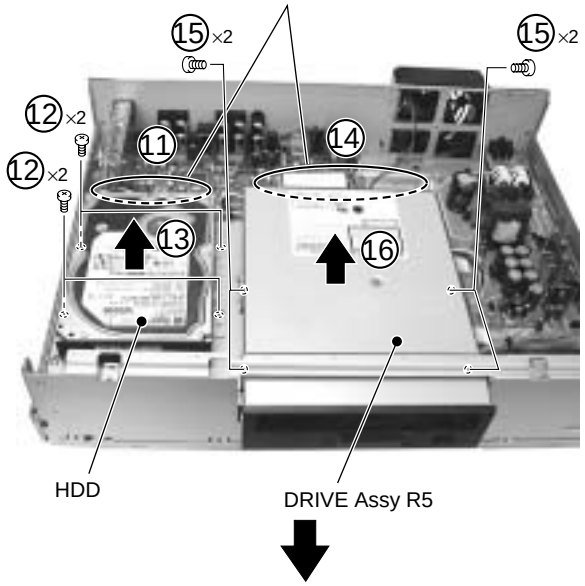


⑧ Remove the four hooks.
⑨ Disconnect the two flexible cables.
⑩ Remove the front panel section.

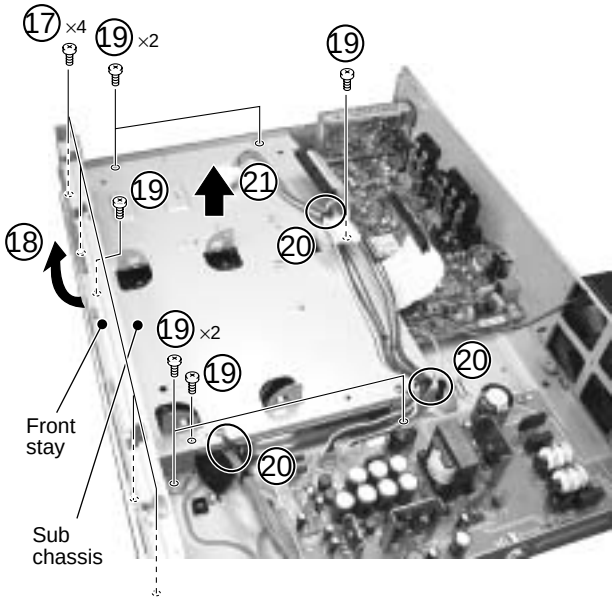


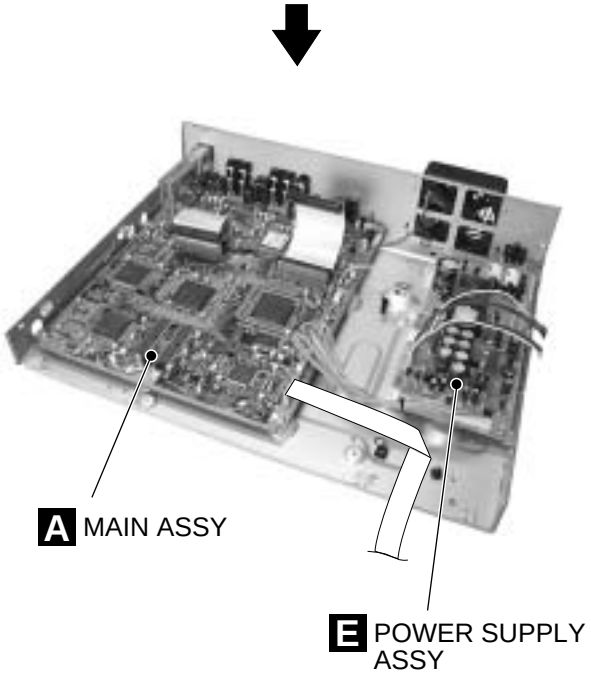
⑪ Disconnect the two connectors.
⑫ Remove the four screws.
⑬ Remove the HDD.
⑭ Disconnect the three connectors.
⑮ Remove the four screws.
⑯ Remove the DRIVE Assy R5.

Note: When diagnosing the HDD and the DRIVE Assy R5, use the two Jig cables (Shield ATA cable: GGD1365).



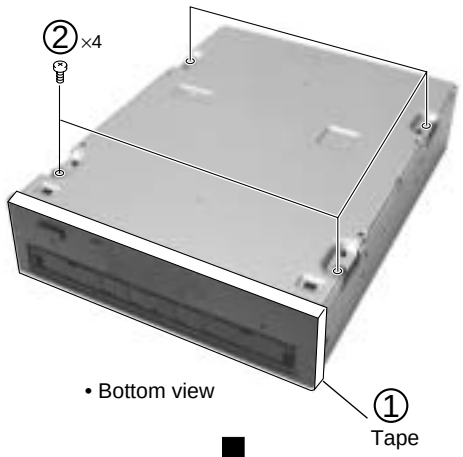
⑰ Remove the four screws.
⑱ Remove the front stay.
⑲ Remove the seven screws.
⑳ Release cables from the three cord holders.
㉑ Remove the sub chassis.



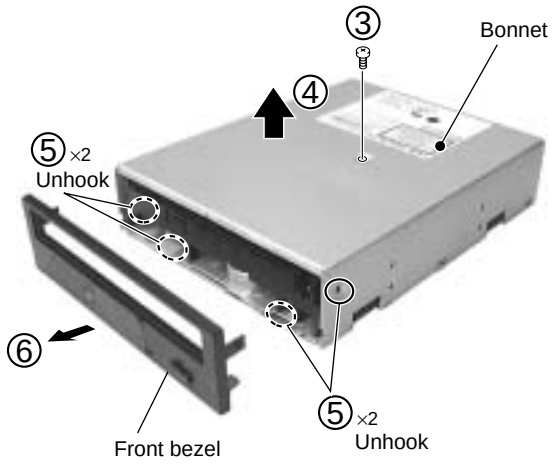


■ DRIVE ASSY R5 (DVD-R/RW WRITER)

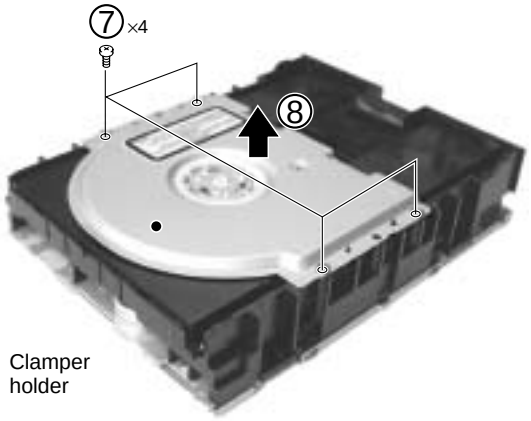
① Tear off a tape.
② Remove the four screws.



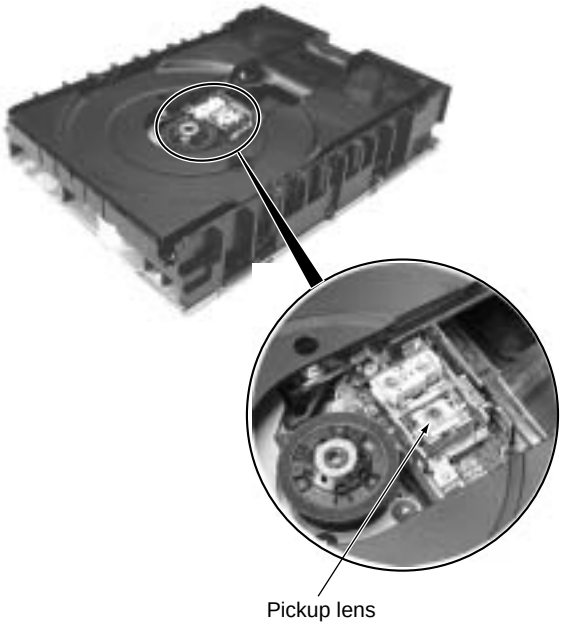
③ Remove the one screw.
④ Remove the bonnet.
⑤ Remove the four hooks.
⑥ Remove the front bezel.



⑦ Remove the four screws.
⑧ Remove the clamper holder.



⑨ Clean the pickup lens.



■ CLEANING

Before shipping out the product, be sure to clean the following positions by using the prescribed cleaning tools:

Position to be cleaned	Cleaning tools
Pickup lenses	Cleaning liquid : GEM1004 Cleaning paper : GED-008

7.1.2 CAUTIONS ON HANDLING THE HDD

(1) Cautions on Handling the HDD

- The HDD is very sensitive to shocks and vibrations. Care must be taken especially during operation (when the power is on).
- The HDD is very sensitive to electrostatic charges.
- Rapid change in temperature or humidity may cause deterioration of the HDD.

Note: After receiving damage caused by any above-mentioned factors, the HDD may operate normally for dozens or some hundreds of hours but then suddenly crash. If you are certain you have damaged a new repair part (HDD) while making repairs, do not use the part.

The HDD is about 10 times as sensitive to shock during operation than during nonoperation.

Reference: Main specifications on damage to the HDD

	During operation	During nonoperation
Shock G (acceleration)	<approx. 20 G	<approx. 200 G
Temperature change	< 20°C/hour	
Moisture change	< 20%/hour	

Reference: Estimate value of falling distance vs. shock (G) when the HDD is dropped without protection

Falling distance \ Landing surface	Granite surface	Concrete floor	Synthetic-resin-coated table	Antistatic sponge
0.5 inch / 12.7 cm	387	217	200	26
1.0 inch / 25.4 cm	595	457	310	37
2.0 inch / 50.8 cm	1133	600	680	70
4.0 inch / 101.6 cm	1795	1040	1050	267

(2) Cautions on handling the product on which the HDD is mounted or the HDD as a repair part, and examples of dangerous handling

[Cautions on handling the product on which the HDD is mounted]

- While the unit is turned on, the HDD is always in operation. Be sure NOT to impart shock to the unit.

● Examples of dangerous handling: while the power is on

- Bumping on the bonnet
- Dropping an object, such as a small screwdriver or remote control unit, onto the bonnet, or bumping an object against the cabinet
- Moving the unit by dragging
- Stacking another product on the unit

Note: Be sure NOT to impart shock, such as bumping or hitting a screwdriver against the HDD, during diagnosis with the bonnet open.

● Examples of dangerous handling: while the power is off

- Imparting strong shock, although the HDD is more resistant to shock when the power is off
- Dropping the unit from a height of several centimeters, or after lifting one side of the unit up, then letting the unit drop.

- Do NOT move the unit immediately after the power is turned off. Wait at least 30 seconds after the indication on the FL display changed from POWER OFF to the clock indication before moving the unit.
  If the AC power cord is accidentally disconnected before turning the unit off, wait at least for one minute before moving it. In this case, damage to the HDD caused by sudden shutoff may be small, because the emergency relief mechanism is activated. However, if sudden shutoff occurs during recording or playback, recorded data may be damaged. Be sure to check operations.

[Cautions on handling the HDD as a repair part]

1. Handle the HDD in a safe environment:
   - Handle the HDD over an antistatic pad that can also absorb shock.
   - Wear wrist bands to prevent electrostatic charges generated in your body from affecting the HDD.

2. The following must be observed when handling the HDD:
   - Handle one HDD at a time. Do NOT hold several HDDs at the same time.
   - Grip the HDD on both sides so that you do not touch its terminals or circuit boards.
   - Do NOT stack one HDD onto another HDD (even if the HDDs are protected in antistatic bags).
   - Do NOT bump the HDDs against one another.
   - Do NOT bump any tool, such as a screwdriver, or other hard object against the HDD.
   - When a repair part (HDD) is transported and there is a large temperature difference between outdoors and indoors, to the indoor, leave it in its package for about a half day to gradually cool or warm the HDD to room temperature before unpacking it.

[Notes on packing for shipment]

- When returning a defective HDD for analysis, handle with care as if it were a good product. Otherwise, the results of analysis may not be correct.
- When packing, use the antistatic bag and packing materials in which the repair part for service was delivered. Attach a copy of the slip for service or a memo stating symptoms in as much detail as possible.

■ Outline and part No. of the HDDs

Model Name	Capacity	Maxtor	
		Pioneer's Part No. (for service)	Manufacturer's Part No.
DVR-810H-S	80 Gbyte	VXF1010	4R080L∗
DVR-57H	120 Gbyte	VXF1016	4R120L∗

∗ Pioneer's part No. is not stamped.

- When replacing the HDD, carefully check the capacity and manufacturer's part No. on the part label to avoid replacing with a similar but inappropriate product. You can also check the model No. of the mounted HDD on the Service mode screen.
- Do NOT use repair parts, such as commercially available HDDs, other than those designated above, as their functions, performance or reliability cannot be guaranteed.

● **Maxtor**

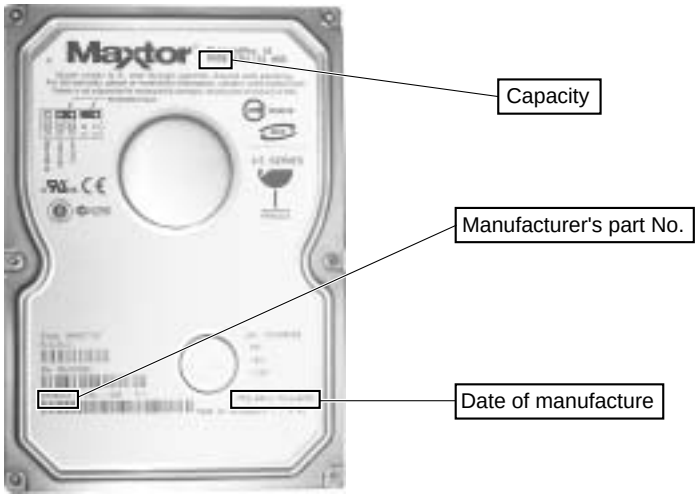


Fig. 1 Location of the data on capacity and part No. of the HDD

■ Setting of the jumper pin of the HDD

For shipment, the jumper pin of the HDD is inserted into CS (Cable Select), as shown below. Before mounting the HDD on the unit, change the position of the jumper pin to MASTER.

● **Maxtor**

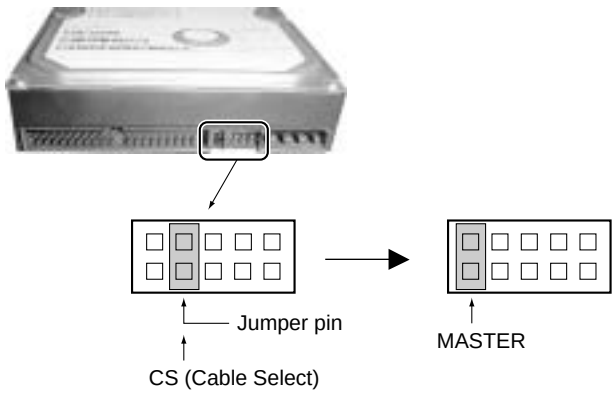


Fig. 2 Setting of the jumper pin

7.2 PARTS

7.2.1 IC

• The information shown in the list is basic information and may not correspond exactly to that shown in the schematic diagrams.

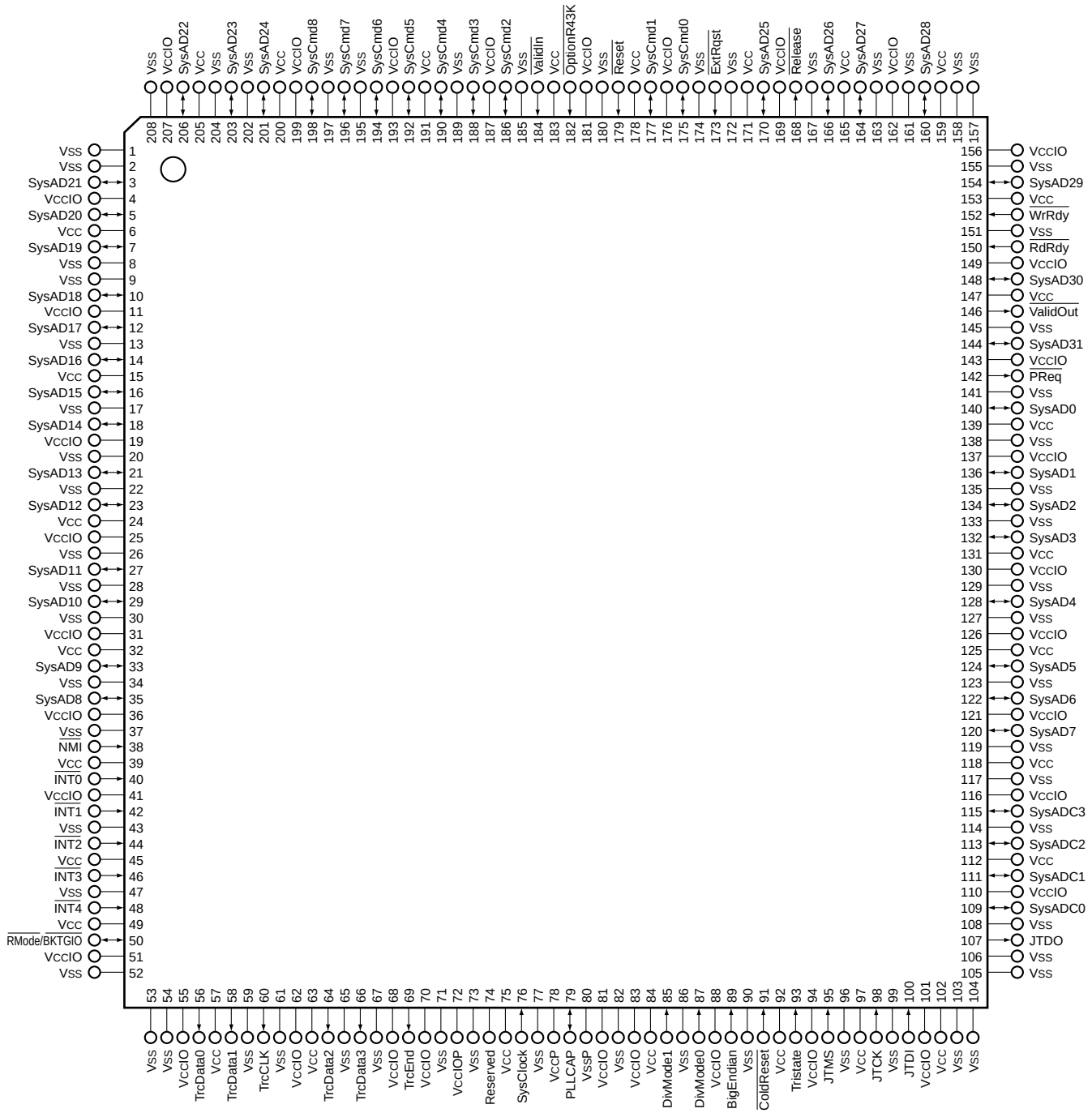
● **List of IC**

uPD30541GD167H, ICS650R-22, MK2745-27R, MK2745-24S, LM3526M-H, uPD720100AGM-8EY, Si2433-KTR-REVF, Si3015-KSR-REVD, CASC-00003-000, TC74A5-3.3VCT, M41T00M6, AT90SC6464C-AL, ADM101EARM, XC2S15-5TQ144C, MSP4448G-FH-A2, SAA7115HL/V1, FLI2301-BC

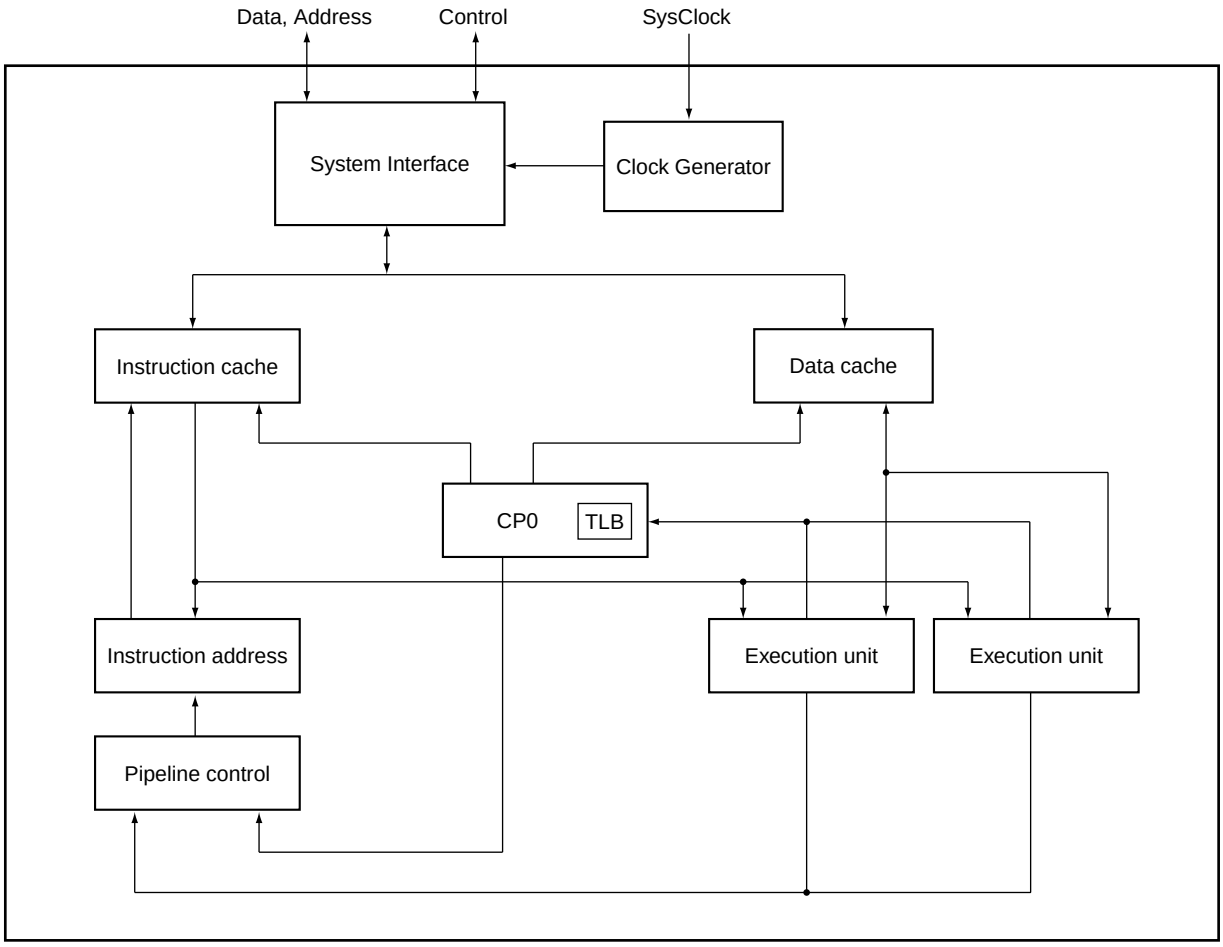
■ uPD30541GD167H (MAIN ASSY : IC1001)

• 64-bit Microprocessor

● **Pin Arrangement (Top view)**



● Block Diagram



● Pin Function

No.	Pin Name	Definition	I/O	Function
173	ExtRqst / [EReq]	External request (OptionR43K is high)	I	An external agent assers ExtRqst to request use of the System interface. The processor grants the request by asserting Release.
		External request (OptionR43K is low)		An external agent assers EReq to request use of the System interface. The processor grants the request by asserting PMaster.
168	Release / [PMaster]	Release interface (OptionR43K is high)	O	In response to the assertion of ExtRqst, the processor asserts Release, signalling to the requesting device that the System interface is available. Release is also asserted for an uncompelled change to slave state when one or more read requests is outstanding.
		Processor Master (OptionR43K is low)		Indicates the processor is the master of the System interface bus, and in response to the assertion of EReq, the processor asserts PMaster, signalling to the requesting device that the System interface is available. PMaster is also asserted for an uncompelled change to slave start when one read requests is outstanding.
142	PReq / [PReq]	Processor Request (OptionR43K is high)	O	Indicates that the processor has another request that is pending. This is used to indicate that the processor would like to send another transaction. It is up to the external agent to grant the request by releasing the system interface with an external null request.
		Processor Request (OptionR43K is low)		Indicates the processor is requesting System interface bus ownership. Also, when the processor experiences a protocol error (the processor detects an external agent has violated the SysAD bus protocol), the processor continuously toggles PReq.
150	RdRdy / [Unused]	Read ready (OptionR43K is high)	I	The external agent asserts RdRdy to indicate that it can accept processor read requests.
		Unused (OptionR43K is low)		The pin is not used when the processor has the interface protocol compatible with VR4300 interface protocol.
144, 148, 154, 160, 164, 166, 170, 201, 203, 206, 3, 5, 7, 10, 12, 14, 16, 18, 21, 23, 27, 29, 33, 35, 120, 122, 124, 128, 132, 134, 136, 140	SysAD (31 : 0) / [SysAD (31 : 0)]	System address / data bus (OptionR43K is high)	I/O	A 32-bit address and data bus for communication between the processor and an external agent.
		System address / data bus (OptionR43K is low)		
115,113, 111,109	SysADC (3 : 0) / [SysADC (3 : 0)]	System address / data check bus (OptionR43K is high)	I/O	An 4-bit bus containing parity for the SysAD bus. SysADC is valid on data cycles only.
		Cache test (OptionR43K is low)		When OptionR43K is set active low. Those pins are used for Cache test only.
198, 196, 194, 192, 190, 188, 186, 177, 175	SysCmd (8 : 0) / [SysCmd (4 : 0)]	System command / data identifier (OptionR43K is high)	I/O	A 9-bit bus for command and data identifier transmission between the processor and an external agent.
		System command / data identifier (OptionR43K is low)		A 5-bit bus for command and data identifier transmission between the processor and an external agent. SysCmd (8 : 5) are unused.

No.	Pin Name	Definition	I/O	Function
184	$\overline{\text{ValidIn}}$ / [$\overline{\text{EValid}}$]	Valid input ($\overline{\text{OptionR43K}}$ is high)	I	The external agent asserts $\overline{\text{ValidIn}}$ when it is driving a valid address or data on the SysAD bus and a valid command or data identifier on the SysCmd bus.
		External Valid input ($\overline{\text{OptionR43K}}$ is low)		The external agent asserts $\overline{\text{EValid}}$ when it is driving a valid address or data on the SysAD bus and a valid command or data identifier on the SysCmd bus.
146	$\overline{\text{ValidOut}}$ / [$\overline{\text{PValid}}$]	Valid output ($\overline{\text{OptionR43K}}$ is high)	O	The processor asserts $\overline{\text{ValidOut}}$ when it is driving a valid address or data on the SysAD bus and a valid command or data identifier on the SysCmd bus to the external agent.
		Processor Valid output ($\overline{\text{OptionR43K}}$ is low)		The processor asserts $\overline{\text{PValid}}$ when it is driving a valid address or data on the SysAD bus and a valid command or data identifier on the SysCmd bus to the external agent.
152	$\overline{\text{WrRdy}}$ / [$\overline{\text{EOK}}$]	Write ready ($\overline{\text{OptionR43K}}$ is high)	I	The external agent asserts $\overline{\text{WrRdy}}$ when it can accept a processor write request.
		External OK for read / write ($\overline{\text{OptionR43K}}$ is low)		The external agent asserts $\overline{\text{EOK}}$ to indicate that it can accept processor read / write requests.
1, 2, 8, 9, 13, 17, 20, 22, 26, 28, 30, 34, 37, 43, 47, 52, 53, 54, 59, 61, 65, 67, 71, 73, 77, 82, 86, 90, 96, 99, 103, 104, 105, 106, 108, 114, 117, 119, 123, 127, 129, 133, 135, 138, 141, 145, 151, 155, 157, 158, 161, 163, 167, 172, 174, 180, 185, 189, 195, 197, 202, 204, 208	Vss / [Vss]	Vss for processor Core and Processor I/O	I	Ground for the internal core logic and processor I/O interface.
6, 15, 24, 32, 39, 45, 49, 57, 63, 75, 84, 92, 97, 102, 112, 118, 125, 131, 139, 147, 153, 159, 165, 171, 178, 183, 191, 200, 205	Vcc / [Vcc]	Vcc for Processor Core	I	2.5V power for the internal core logic.
4, 11, 19, 25, 31, 36, 41, 51, 55, 62, 68, 70, 81, 83, 88, 94, 101, 110, 116, 121, 126, 130, 137, 143, 149, 156, 162, 169, 176, 181, 187, 193, 199, 207	VccIO / [VccIO]	Vcc for Processor I/O	I	3.3V power for the processor I/O interface.

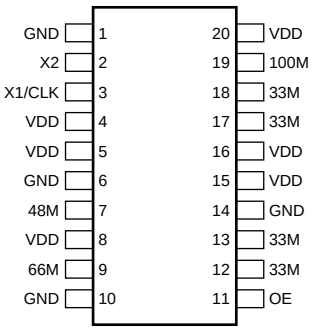
No.	Pin Name	Definition	I/O	Function
76	SysClock / [MasterClock]	System Clock (OptionR43K is high)	I	System clock (SysClock) input that establishes the system interface operating frequency and phase during normal operation.
		System Clock (OptionR43K is low)		System clock (MasterClock) input that establishes the system interface operating frequency and phase during normal operation.
78	VccP / [VccP]	Quiet VCC for PLL (Independent from OptionR43K)	I	Quiet VCC for the internal phase locked loop. This is 2.5V power. Each internal PLL requires a quiet VCC.
80	VssP / [VssP]	Quiet VSS for PLL (Independent from OptionR43K)	I	Quiet VSS for the internal phase locked loop. Each internal PLL requires a quiet VSS.
79	PLLCAP / [PLLCAP]	PLL capacitor (Independent from OptionR43K)	I	A resistor/capacitor network is connected between PLLCAP and VssP to ensure the proper operation of the phase-lock loop.
48, 46, 44, 42, 40	$\overline{\text{Int}}$ (4 : 0) / [$\overline{\text{Int}}$ (4 : 0)]	Interrupt (Independent from OptionR43K)	I	General processor interrupts, bit-wise ORed with bits 4:0 of the interrupt register.
38	$\overline{\text{NMI}}$ / [$\overline{\text{NMI}}$]	Non-maskable interrupt (Independent from OptionR43K)	I	Non-maskable interrupt, ORed with bit 6 of the interrupt register.
182	$\overline{\text{OptionR43K}}$	VR4300™ Mode	I	When $\overline{\text{OptionR43K}}$ is set active low. The VR5432 operates with the VR4300-protocol.
85, 87	DivMode (1 : 0) / [DivMode (1 : 0)]	Divide Mode (Independent from OptionR43K)	I	Set the PClock to SysClock ratio. DivMode (1 : 0) / Ratio 11 / 4 : 1 10 / 3 : 1 01 / 2.5 : 1 00 / 2 : 1
89	BigEndian / [BigEndian]	Endian mode select (Independent from OptionR43K)	I	Sets VR5432 addressing mode to either Big Endian or Little Endian.
91	$\overline{\text{ColdReset}}$ / [$\overline{\text{ColdReset}}$]	Cold reset (Independent from OptionR43K)	I	This signal must be asserted for a power on reset or a cold reset. ColdReset must be deasserted synchronously with SysClock.
179	$\overline{\text{Reset}}$ / [$\overline{\text{Reset}}$]	Reset (Independent from OptionR43K)	I	This signal must be asserted for any reset sequence. It can be asserted synchronously or asynchronously for a cold reset, or snchronously to initiate a warm reset. Reset must be deasserted synchronously with SysClock.
66, 64, 58, 56	TrcData (3 : 0) / [TrcData (3 : 0)]	Trace Data Port (Independent from OptionR43K)	O	This bus is used to output all trace data codes generated as a result of processor execution.
69	TrcEnd / [TrcEnd]	Trace End (Independent from OptionR43K)	O	Assertion of this signal indicates the end of a trace data packet from the TrcData port. Trace packets can consist of a signal clock cycle of data from the TrcData port, or multiple cycles of data from the TrcData port.
60	TrcClk / [TrcClk]	Trace Clock (Independent from OptionR43K)	O	The Trace clock is the same as the System Clock. This output is generated for the benefit of test equipment that require the clock reference for trace information.
50	$\overline{\text{RMode}}$ / $\overline{\text{BKTGIO}}$ / [RMode / BKTGIO]	Reset Mode Break, Trigger I/O (Independent from OptionR43K)	I/O	This pin supports the N-Wire reset mode, as well as break and trigger functions. This pin is $\overline{\text{RMode}}$ until $\overline{\text{ColdReset}}$ is deasserted. It is then BKTGIO and serves as a break or trigger, as well as an input or output depending on the setup in various Debug Registers.

No.	Pin Name	Definition	I/O	Function
93	Tristate / [Tristate]	3-state all outputs (Independent from $\overline{\text{OptionR43K}}$)	I	This signal 3-states all VR5432 outputs to allow board level test to isolate the VR5432 processor.
100	JTDI / [JTDI]	Test Data in (Independent from $\overline{\text{OptionR43K}}$)	I	Data is serially scanned in through this pin.
98	JTCK / [JTCK]	Test Clock input (Independent from $\overline{\text{OptionR43K}}$)	I	The processor accepts a serial clock on JTCK. On the rising edge of JTCK, both JTDI and JTMS are sampled. The maximum frequency of JTCK is 33 MHz, and it runs asychronously to the SysClock.
107	JTDO / [JTDO]	Test Data Out (Independent from $\overline{\text{OptionR43K}}$)	O	Data is serially scanned out through this pin on the falling edge of JTCK.
95	JTMS / [JTMS]	Test Mode Select (Independent from $\overline{\text{OptionR43K}}$)	I	JTAG Test Mode Select signal.

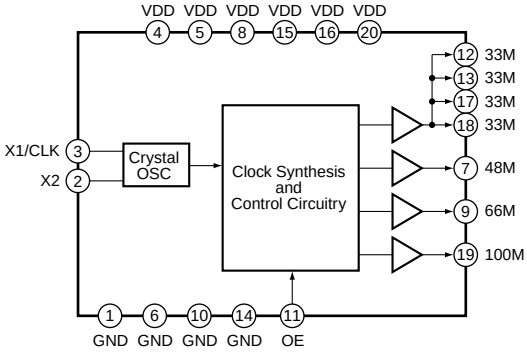
■ ICS650R-22 (MAIN ASSY : IC1101)

• STB Clock Source

● Pin Arrangement (Top view)



● Block Diagram



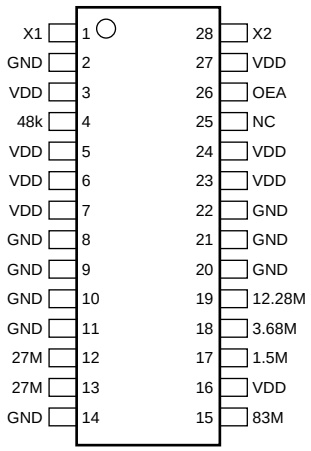
● Pin Function

No.	Pin Name	I/O	Function
1	GND	–	Connect to ground.
2	X2	I	Connect to a crystal input or leave open for ICLK.
3	X1/CLK	I	Connect to a crystal or reference clock input.
4, 5	VDD	–	Connect to +3.3V.
6	GND	–	Connect to ground.
7	48M	O	48 MHz clock output.
8	VDD	–	Connect to +3.3V.
9	66M	O	66 MHz clock output.
10	GND	–	Connect to ground.
11	OE	I	Output enable active high. Internal pull-up resistor.
12, 13	33M	O	33.33 MHz clock output.
14	GND	–	Connect to ground.
15, 16	VDD	–	Connect to +3.3V.
17, 18	33M	O	33.33 MHz clock output.
19	100M	O	100 MHz clock output.
20	VDD	–	Connect to +3.3V

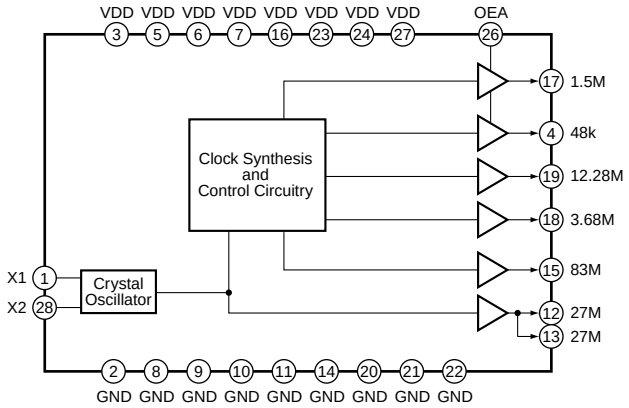
MK2745-27R (MAIN ASSY : IC1102)

• Set-top Box Clock Generator

● Pin Arrangement (Top view)



● Block Diagram



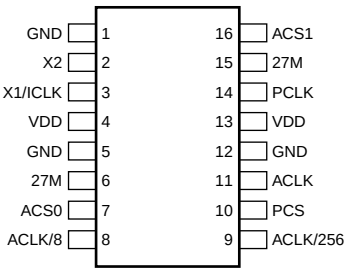
● Pin Function

No.	Pin Name	I/O	Function
1	X1	–	Crystal connection. Connect to 27 MHz fundamental mode crystal or clock input.
2	GND	–	Connect to ground.
3	VDD	–	Power supply. Connect to +3.3V.
4	48k	O	48 kHz output.
5	VDD	–	Power supply. Connect to +3.3V.
6	VDD	–	Power supply. Connect to +3.3V.
7	VDD	–	Power supply. Connect to +3.3V.
8	GND	–	Connect to ground.
9	GND	–	Connect to ground.
10	GND	–	Connect to ground.
11	GND	–	Connect to ground.
12	27M	O	27 MHz output.
13	27M	O	27 MHz output.
14	GND	–	Connect to ground.
15	83M	O	83.333 MHz clock output.
16	VDD	–	Power supply. Connect to +3.3V.
17	1.5M	O	1.536 MHz output.
18	3.68M	O	3.6864 MHz output.
19	12.28M	O	12.288 MHz output.
20	GND	–	Connect to ground.
21	GND	–	Connect to ground.
22	GND	–	Connect to ground.
23	VDD	–	Power supply. Connect to +3.3V.
24	VDD	–	Power supply. Connect to +3.3V.
25	NC	–	Do not connect anything to this pin.
26	OEA	I	Output enable (tristate pin 17 and pin 4 when low)
27	VDD	–	Power supply. Connect to +3.3V.
28	X2	–	Crystal connection, or leave unconnected for clock input.

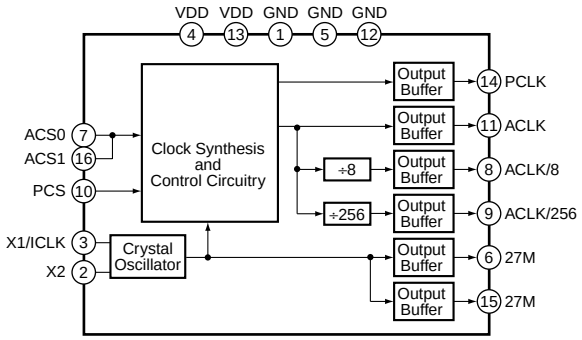
MK2745-24S (MAIN ASSY : IC1103)

• DVD/MPEG Clock Source

● Pin Arrangement (Top view)



● Block Diagram



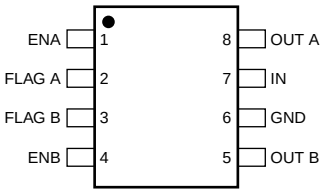
● Pin Function

No.	Pin Name	I/O	Function
1	GND	–	Connect to ground.
2	X2	O	Crystal connection. Connect to 27 MHz crystal. Leave unconnected for clock input.
3	X1/ICLK	I	Crystal connection. Connect to 27 MHz crystal or connect to 27 MHz input clock.
4	VDD	–	Connect to +3.3V or +5V. Must be same as other VDD.
5	GND	–	Connect to ground.
6	27M	O	27.00 MHz clock input.
7	ACS0	I	Audio clock select 0.
8	ACLK/8	O	Audio clock divided by 8 output. Determined by status of ACS1, ACS0.
9	ACLK/256	O	Audio clock divided by 256 output. Determined by status of ACS1, ACS0.
10	PCS	I	Processor Clock Select pin.
11	ACLK	O	Audio clock output. Determined by status of ACS1, ACS0.
12	GND	–	Connect to ground.
13	VDD	–	Connect to +3.3V or +5V. Must be same as other VDD.
14	PCLK	O	Processor Clock output. Determined by status of PCS.
15	27M	O	27.00 MHz clock output.
16	ACS1	I	Audio Clock Select 1.

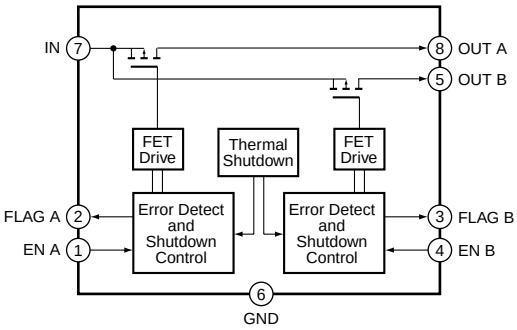
LM3526M-H (MAIN ASSY : IC3001)

• Dual Port USB Power Switch and Over-Current Protection

● Pin Arrangement (Top view)



● Block Diagram



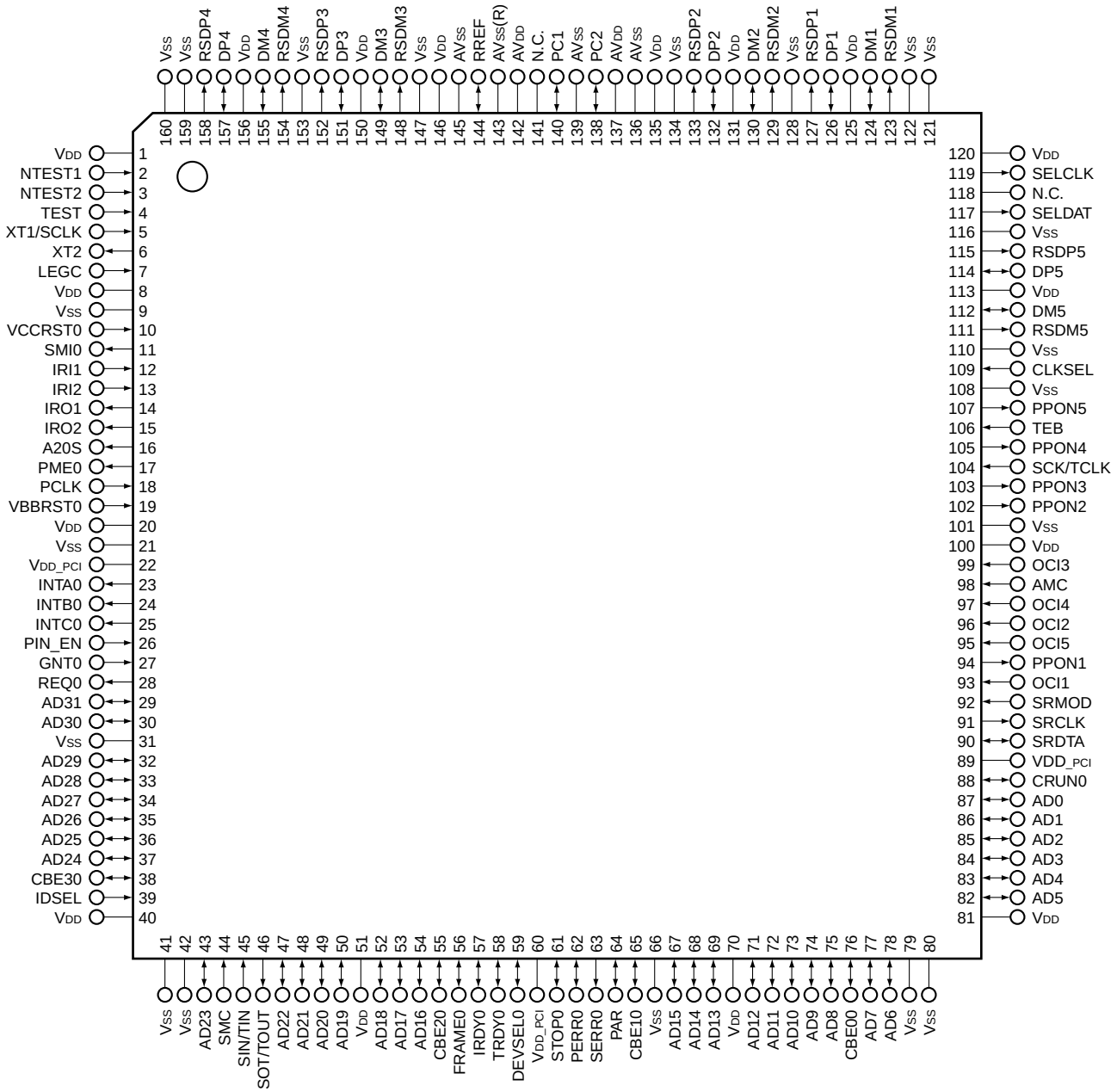
● Pin Function

No.	Pin Name	I/O	Function
1	ENA	I	Enable (Input) : Logic-compatible enable input.
2	FLAG A	O	Fault Flag (Output) : Active-low, open-drain output. Indicates overcurrent, UVLO or thermal shutdown.
3	FLAG B	O	Fault Flag (Output) : Active-low, open-drain output. Indicates overcurrent, UVLO or thermal shutdown.
4	ENB	I	Enable (Input) : Logic-compatible enable input.
5	OUT B	O	Switch output : This pin is the output of the high side switch.
6	GND	–	Ground
7	IN	I	Supply input : This pin is the input to the power switch and the supply voltage for the IC.
8	OUT A	O	Switch output : This pin is the output of the high side switch.

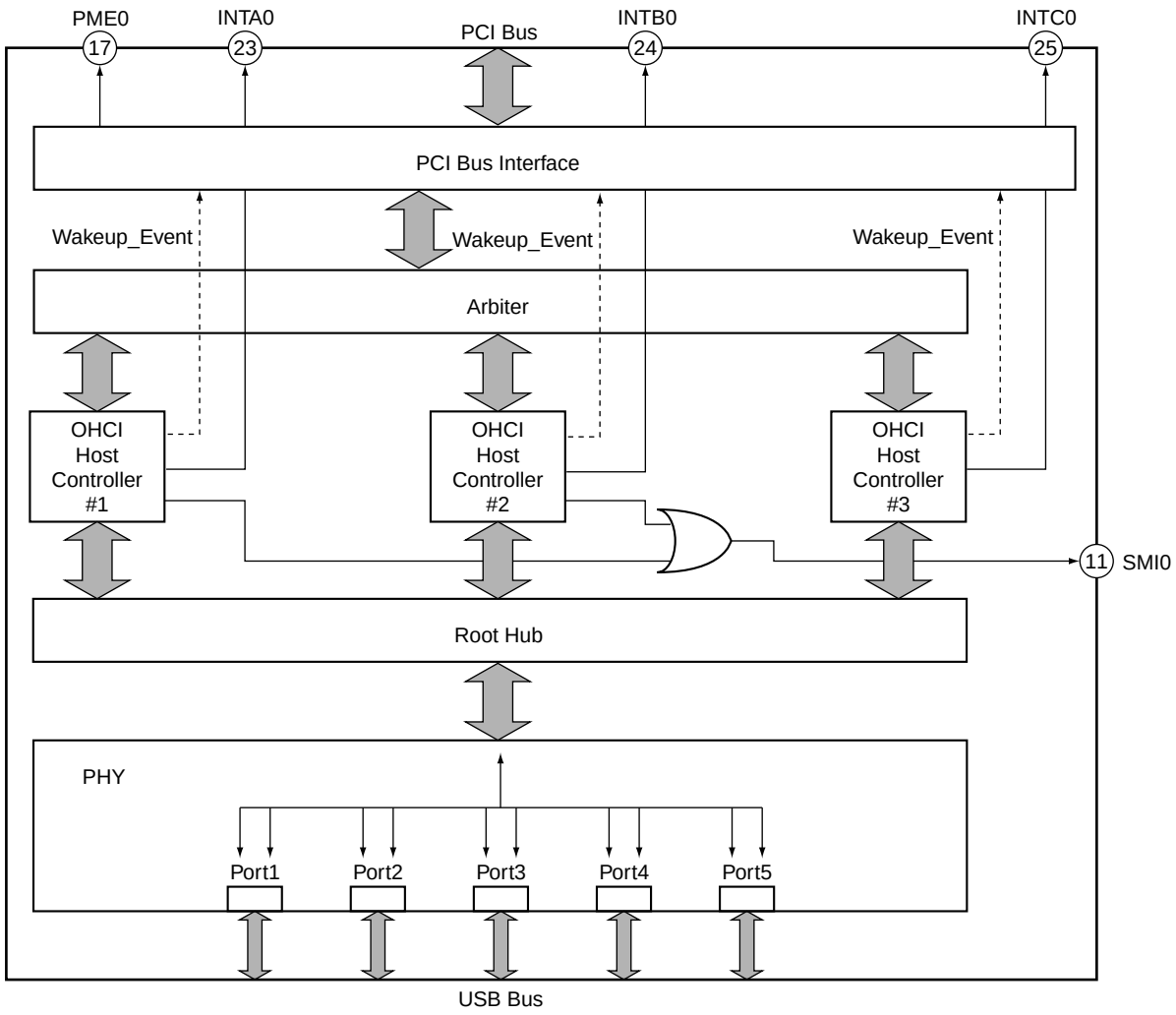
uPD720100AGM-8EY (MAIN ASSY : IC3002)

- USB 2.0 Host Controller

● Pin Arrangement (Top view)



● Block Diagram



● Pin Function

■ Power supply

No.	Pin Name	I/O	Function
1, 8, 20, 40, 51, 70, 81, 100, 113, 120, 125, 131, 135, 146, 150, 156	V_{DD}	–	+3.3V power supply
22, 60, 89	V_{DD_PCI}	–	+5V for 5V PCI or +3.3V for 3.3V PCI
137, 142	AV_{DD}	–	+3.3V power supply for analog circuit
9, 21, 31, 41, 42, 66, 79, 80, 101, 108, 110, 116, 121, 122, 128,134, 147, 153, 159, 160	V_{SS}	–	Ground
136, 139, 143, 145	AV_{SS}	–	Ground for analog circuit
118, 141	N.C.	–	No Connection

■ Analog signaling

No.	Pin Name	I/O	Function
144	RREF	–	RREF must be connected a 1% precision reference resistor of 9.1 kΩ. The other side of resistor must be connected to local ground.
140	PC1	–	PC1 is used for PLL function. Should be left open on circuit board.
138	PC2	–	PC2 is used for PLL function. Should be left open on circuit board.

■ PCI interface

No.	Pin Name	I/O	Function
29, 30, 32-37, 43, 47-50, 52-54, 67-69, 71-75, 77, 78, 82-87	AD (31 : 0)	I/O	PCI "AD [31 : 0]" signal
38, 55, 65, 76	CBE (3 : 0)	I/O	PCI "C/BE [3 : 0]" signal
64	PAR	I/O	PCI "PAR" signal
56	FRAME0	I/O	PCI "FRAME#" signal
57	IRDY0	I/O	PCI "IRDY#" signal
58	TRDY0	I/O	PCI "TRDY#" signal
61	STOP0	I/O	PCI "STOP#" signal
39	IDSEL	I	PCI "IDSEL" signal
59	DEVSEL0	I/O	PCI "DEVSEL#" signal
28	REQ0	O	PCI "REQ#" signal
27	GNT0	I	PCI "GNT#" signal
62	PERR0	I/O	PCI "PERR#" signal
63	SERR0	O	PCI "SERR#" signal
23	INTA0	O	PCI "INTA#" signal
24	INTB0	O	PCI "INTB#" signal
25	INTC0	O	PCI "INTC#" signal
18	PCLK	I	PCI "CLK" signal
19	VBBRST0	I	Hardware Reset for Chip
88	CRUN0	I/O	PCI "CLKRUN#" signal
17	PME0	O	PCI "PME#" signal
26	PIN_EN	I	PCI Interface enable

■ System clock & reset for power management

No.	Pin Name	I/O	Function
5	XT1/SCLK	I	System clock input or Oscillator input Apply 48 MHz clock input or connect 30 MHz X'tal. Clock frequency is selected by "CLKSEL" signal.
6	XT2	O	IF 48 MHz clock input is applied to SCLK, this signal must be opened. Otherwise, connect to 30 MHz X'tal. Clock frequency is selected by "CLKSEL" signal.
10	VCCRST0	I	Reset for Power management.

■ USB interface

No.	Pin Name	I/O	Function
114, 157, 151, 132, 126	DP (5 : 1)	I/O	USB's D+ high-speed signal Shared with DMx pins having the same numbers.
115, 158, 152, 133, 127	RSDP (5 : 1)	O	USB's D+ full-speed signal Connected to DPx through 36 Ω 5% precision Rs resistor.
112, 155, 149, 130, 124	DM (5 : 1)	I/O	USB's D– high-speed signal Shared with DPx pins having the same numbers.
111, 154, 148, 129, 123	RSDM (5 : 1)	O	USB's D– full-speed signal Connected to DMx through 36 Ω 5% precision Rs resistor.
95, 97, 99, 96, 93	OCI (5 : 1)	I	Pin for inputting the overcurrent status of the USB Root Hub Port 1 : No power supply problem 2 : Overcurrent has occurred
107, 105, 103, 102, 94	PPON (5 : 1)	O	Power supply control output for USB Root Hub Port 0 : Power supply OFF 1 : Power supply ON

■ System interface

No.	Pin Name	I/O	Function
11	SMI0	O	System management inturrupt output 0 : Interrupt occurs 1 : Interrupt does not occur
109	CLKSEL	I	Clock signal select 1 : XT1/SCLK must be applied 48 MHz clock input 0 (Default) : XT1/SCLK must be connected to 30 MHz X'tal
91	SRCLK	O	Serial ROM Clock out
90	SRDTA	I/O	Serial ROM Data
92	SRMOD	I	Serial ROM Input Enable 0 (Default) : Serial ROM Inactive 1 : Serial ROM Active

Chip clock type	CLKSEL	On board setting
Use 48 MHz clock input	1	48 MHz clock signal supply to XT1/SCLK on board
Use 30 MHz Oscillator	0	30 MHz X'tal connects between XT1/SCLK and XT2. Also, the capacitor and some other element must be required.

■ **Legacy support interface**

No.	Pin Name	I/O	Function
7	LEGC	I	Legacy support switch 0 : Legacy OFF 1 : Legacy ON When off, "L" clamp IRI1 and IRI2 and leave IRO1, IRO2 and A20S open.
12	IRI1	I	INT input from keyboard : active high
13	IRI2	I	INT input from mouse : active high
14	IRO1	O	INT output from keyboard : active high
15	IRO2	O	INT output from mouse : active high
16	A20S	O	Gate A20S State output

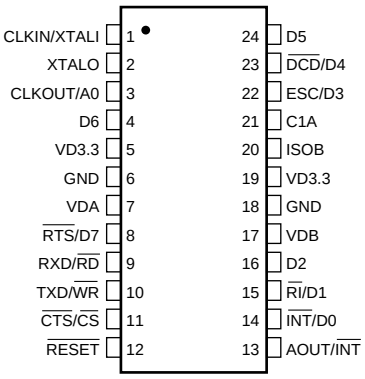
■ **Test signals**

No.	Pin Name	I/O	Function
44	SMC	I	Should be left open on circuit board.
45	SIN/TIN	I	Should be left open on circuit board.
46	SOT/TOUT	O	Should be left open on circuit board.
104	SCK/TCLK	I	Should be left open on circuit board.
98	AMC	I	Should be left open on circuit board.
119	SELCLK	O	Should be left open on circuit board.
117	SELDAT	O	Should be left open on circuit board.
106	TEB	I	Should be left open on circuit board.
4	TEST	I	Should be left open on circuit board.
2, 3	NTEST (2 : 1)	I	Should be left open on circuit board.

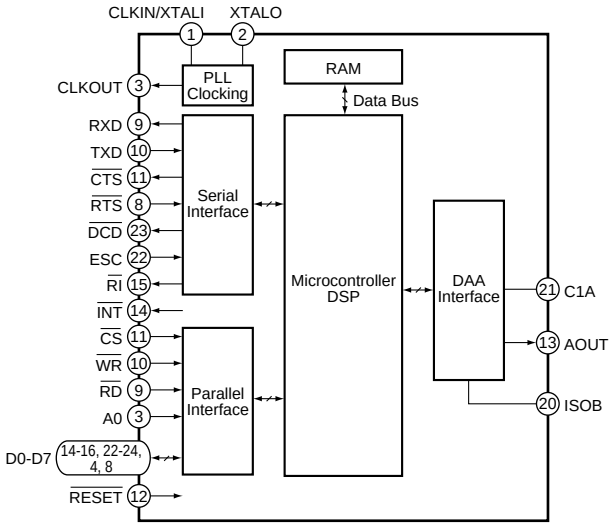
Si2433-KTR-REVF (MAIN ASSY : IC3101)

• V.90, V.34, V.32 BIS ISO Modem with Integrated Grobal DAA

● Pin Arrangement (Top view)



● Block Diagram



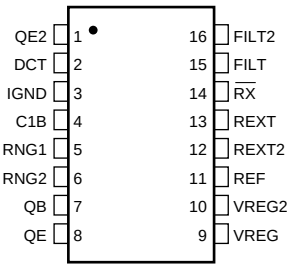
● Pin Function

No.	Pin Name	Function
1	CLKIN/XTALI	Clock Input/Crystal Oscillator Pin. This pin provides support for parallel-resonant, AT-cut crystals. XTALI also acts as an input in the event that an external clock source is used in place of a crystal. A 4.9152 MHz crystal or 4.9152 MHz clock is requred.
2	XTALO	Crystal Oscillator Pin. This pin provides support for parallel-resonant AT-cut crystals. XTALO serves as the output of the crystal amplifier.
3	CLKOUT/A0	Clock Output/Address Bit 0. Clock output in serial mode. Address Enable in parallel mode.
4	D6	Data Bit. Bidirectional parallel bus data bit 6 in parallel mode.
5, 19	VD3.3	Digital Supply Voltage. Provides the 3.3V digital supply voltage to the SI2433.
6, 18	GND	Ground. Connect to the system digital ground.
7, 17	VDA, VDB	Dgital Rail. Pin provides additional power supply voltage to the SI2433.
8	$\overline{RTS}$/D7	Request-to-Send/Data Bit. Request-to-send (for flow control) in serial mode. Bidirectional parallel bus data bit 7 in parallel mode.
9	RXD/$\overline{RD}$	Receive Data/Read Enable. Data output to DTE RXD pin in serial mode. Active low read enable pin in parallel mode.
10	TXD/$\overline{RW}$	Transmit Data/Write Enable. Data input from DTE TXD pin in serial mode. Active low write enable pin in parallel mode.
11	$\overline{CTS}$/$\overline{CS}$	Clear-to-Send/Chip Select. Active low clear-to-send (for flow control) in serial mode. Active low chip select in parallel mode.
12	$\overline{RESET}$	Reset Input. An active low input that is used to reset all control registers to a defined initialized state.
13	AOUT/$\overline{INT}$	Analog Output/Interrupt Output. Analog output in serial mode. Active low interrupt output in parallel mode.
14	$\overline{INT}$/D0	Interrupt Output/Data Bit. Active low interrupt output in serial mode. Bidirectional parallel bus data bit 0 in parallel mode.
15	$\overline{RI}$/D1	Ring Indicator/Data Bit. The $\overline{RI}$ on (active low) indicates the presence of an ON segment of a ring signal on the telephone line. Bidirectional parallel bus data bit 1 in parallel mode.
16	D2	Data Bit. Bidirectional parallel bus data bit 2 in parallel mode.
20	ISOB	Isolink Bias Voltage. This pin should be connected via the C3 capacitor.
21	C1A	Isolation Capacitor 1A. Connects to one side of the isolation capacitor C1.
22	ESC/D3	Escape/Data Bit. Hardware escape in serial mode. Bidirectional parallel bus data bit 3 in parallel mode.
23	$\overline{DCD}$/D4	Carrier Detect/Data Bit. Active low carrier detect in serial mode. Bidirectional parallel bus data bit 4 in parallel mode.
24	D5	Data Bit. Bidirectional parallel bus data bit 5 in parallel mmode.

Si3015-KSR-REVD (MAIN ASSY : IC3201)

• V.90, V.34, V.32 BIS ISO Modem with Integrated Grobal DAA

● Pin Arrangement (Top view)



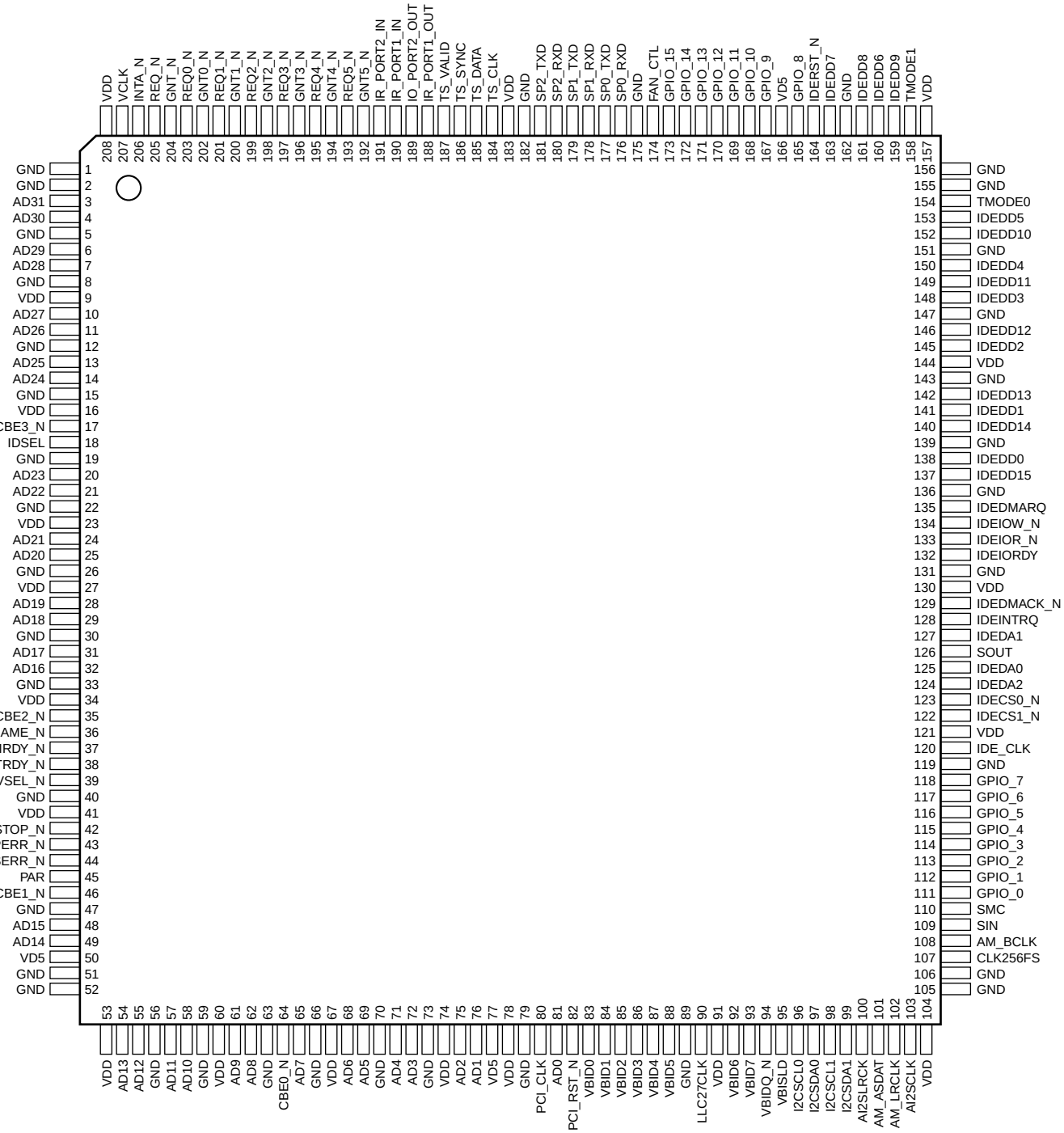
● Pin Function

No.	Pin Name	Function
1	QE2	Transistor Emitter 2. Connects to the emitter of Q4.
2	DCT	DC Termination. Provides DC termination to the telephone network.
3	IGND	Isolated Ground. Connects to ground on the line-side interface. Also connects to capacitor C2.
4	C1B	Isolation Capacitor 1B. Connects to one side of isolation capacitor C1.
5	RNG1	Ring 1. Connects through a capacitor to the TIP lead of the telephone line. Provides the ring and caller ID signals to the modem.
6	RNG2	Ring 2. Connects through a capacitor to the RING lead of the telephone line. Provides the ring and caller ID signals to the modem.
7	QB	Transistor Base. Connects to the base of transistor Q3.
8	QE	Transistor Emitter. Connects to the emitter of transistor Q3.
9	VREG	Voltage Regulator. Connects to an external capacitor to provide bypassing for an internal power supply.
10	VREG2	Voltage Regulator 2. Connects to an external capacitor to provide bypassing for an internal power supply.
11	REF	Reference. Connetcs to an external resistor to provide a high-accuracy reference current.
12	REXT2	External Resistor 2. Sets the complex AC termination inpedance.
13	REXT	External Resistor. Sets the real AC termination inpedance.
14	$\overline{RX}$	Receive Input. Serves as the receive side input from the telephone network.
15	FILT	Filter. Provides filtering for the DC termination circuits.
16	FILT2	Filter 2. Provides filtering for the DC bias circuits.

CASC-00003-000 (MAIN ASSY : IC4001)

- Media Switch (ASIC)

● Pin Arrangement (Top view)



● **Pin Function**

No.	Pin Name	I/O	Function
1	GND	–	Ground
2	GND	–	Ground
3	AD31	B	5V PCI I/O Buffer
4	AD30	B	5V PCI I/O Buffer
5	GND	–	Ground
6	AD29	B	5V PCI I/O Buffer
7	AD28	B	5V PCI I/O Buffer
8	GND	–	Ground
9	VDD	–	Power supply
10	AD27	B	5V PCI I/O Buffer
11	AD26	B	5V PCI I/O Buffer
12	GND	–	Ground
13	AD25	B	5V PCI I/O Buffer
14	AD24	B	5V PCI I/O Buffer
15	GND	–	Ground
16	VDD	–	Power supply
17	CBE3_N	B	5V PCI I/O Buffer
18	IDSEL	I	5V PCI Input Buffer
19	GND	–	Ground
20	AD23	B	5V PCI I/O Buffer
21	AD22	B	5V PCI I/O Buffer
22	GND	–	Ground
23	VDD	–	Power supply
24	AD21	B	5V PCI I/O Buffer
25	AD20	B	5V PCI I/O Buffer
26	GND	–	Ground
27	VDD	–	Power supply
28	AD19	B	5V PCI I/O Buffer
29	AD18	B	5V PCI I/O Buffer
30	GND	–	Ground
31	AD17	B	5V PCI I/O Buffer
32	AD16	B	5V PCI I/O Buffer
33	GND	–	Ground
34	VDD	–	Power supply
35	CBE2_N	B	5V PCI I/O Buffer
36	FRAME_N	B	5V PCI I/O Buffer
37	IRDY_N	B	5V PCI I/O Buffer
38	TRDY_N	B	5V PCI I/O Buffer
39	DEVSEL_N	B	5V PCI I/O Buffer
40	GND	–	Ground
41	VDD	–	Power supply
42	STOP_N	B	5V PCI I/O Buffer
43	PERR_N	B	5V PCI I/O Buffer
44	SERR_N	O	5V PCI Output Buffer
45	PAR	B	5V PCI I/O Buffer
46	CBE1_N	B	5V PCI I/O Buffer
47	GND	–	Ground
48	AD15	B	5V PCI I/O Buffer
49	AD14	B	5V PCI I/O Buffer
50	VD5	–	

No.	Pin Name	I/O	Function
51	GND	–	Ground
52	GND	–	Ground
53	VDD	–	Power supply
54	AD13	B	5V PCI I/O Buffer
55	AD12	B	5V PCI I/O Buffer
56	GND	–	Ground
57	AD11	B	5V PCI I/O Buffer
58	AD10	B	5V PCI I/O Buffer
59	GND	–	Ground
60	VDD	–	Power supply
61	AD9	B	5V PCI I/O Buffer
62	AD8	B	5V PCI I/O Buffer
63	GND	–	Ground
64	CBE0_N	B	5V PCI I/O Buffer
65	AD7	B	5V PCI I/O Buffer
66	GND	–	Ground
67	VDD	–	Power supply
68	AD6	B	5V PCI I/O Buffer
69	AD5	B	5V PCI I/O Buffer
70	GND	–	Ground
71	AD4	B	5V PCI I/O Buffer
72	AD3	B	5V PCI I/O Buffer
73	GND	–	Ground
74	VDD	–	Power supply
75	AD2	B	5V PCI I/O Buffer
76	AD1	B	5V PCI I/O Buffer
77	VD5	–	
78	VDD	–	Power supply
79	GND	–	Ground
80	PCI_CLK	I	5V PCI Input Buffer
81	AD0	B	5V PCI I/O Buffer
82	PCI_RST_N	I	5V PCI Input Buffer
83	VBID0	B	LVTTL I/O Buffer (Low-noise : I_{OL} = 6 mA) with pull-down resistor 50K
84	VBID1	B	LVTTL I/O Buffer (Low-noise : I_{OL} = 6 mA) with pull-down resistor 50K
85	VBID2	B	LVTTL I/O Buffer (Low-noise : I_{OL} = 6 mA) with pull-down resistor 50K
86	VBID3	B	LVTTL I/O Buffer (Low-noise : I_{OL} = 6 mA) with pull-down resistor 50K
87	VBID4	B	LVTTL I/O Buffer (Low-noise : I_{OL} = 6 mA) with pull-down resistor 50K
88	VBID5	B	LVTTL I/O Buffer (Low-noise : I_{OL} = 6 mA) with pull-down resistor 50K
89	GND	–	Ground
90	LLC27CLK	I	FI01
91	VDD	–	Power supply
92	VBID6	B	LVTTL I/O Buffer (Low-noise : I_{OL} = 6 mA) with pull-down resistor 50K
93	VBID7	B	LVTTL I/O Buffer (Low-noise : I_{OL} = 6 mA) with pull-down resistor 50K
94	VBIDQ_N	B	LVTTL I/O Buffer (Low-noise : I_{OL} = 6 mA) with pull-up Resistor 50K
95	VBISLD	B	LVTTL I/O Buffer (Low-noise : I_{OL} = 6 mA) with pull-down resistor 50K
96	I2CSCL0	B	TTL 5V I/O Buffer (Schmitt in : Low-noise : I_{OL} = 12 mA)
97	I2CSDA0	B	TTL 5V I/O Buffer (Schmitt in : Low-noise : I_{OL} = 12 mA)
98	I2CSCL1	B	TTL 5V I/O Buffer (Schmitt in : Low-noise : I_{OL} = 12 mA)
99	I2CSDA1	B	TTL 5V I/O Buffer (Schmitt in : Low-noise : I_{OL} = 12 mA)
100	AI2SLRCK	O	TTL 5V 3-State Output Buffer (Low-noise : I_{OL} = 12 mA)

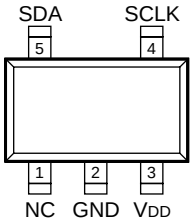
No.	Pin Name	I/O	Function
101	AM_ASDAT	O	TTL 5V 3-State Output Buffer (Low-noise : I_{OL} = 12 mA)
102	AM_LRCLK	B	TTL 5V I/O Buffer (Schmitt in : Low-noise : I_{OL} = 12 mA)
103	AI2SCLK	O	TTL 5V 3-State Output Buffer (Low-noise : I_{OL} = 12 mA)
104	VDD	–	Power supply
105	GND	–	Ground
106	GND	–	Ground
107	CLK256FS	I	LVTTL Input Buffer
108	AM_BCLK	B	TTL 5V I/O Buffer (Schmitt in : Low-noise : I_{OL} = 12 mA)
109	SIN	I	LVTTL Input Buffer
110	SMC	I	LVTTL Input Buffer
111	GPIO_0	B	TTL 5V I/O Buffer (Schmitt in : Low-noise : I_{OL} = 12 mA)
112	GPIO_1	B	TTL 5V I/O Buffer (Schmitt in : Low-noise : I_{OL} = 12 mA)
113	GPIO_2	B	TTL 5V I/O Buffer (Schmitt in : Low-noise : I_{OL} = 12 mA)
114	GPIO_3	B	TTL 5V I/O Buffer (Schmitt in : Low-noise : I_{OL} = 12 mA)
115	GPIO_4	B	TTL 5V I/O Buffer (Schmitt in : Low-noise : I_{OL} = 12 mA)
116	GPIO_5	B	TTL 5V I/O Buffer (Schmitt in : Low-noise : I_{OL} = 12 mA)
117	GPIO_6	B	TTL 5V I/O Buffer (Schmitt in : Low-noise : I_{OL} = 12 mA)
118	GPIO_7	B	TTL 5V I/O Buffer (Schmitt in : Low-noise : I_{OL} = 12 mA)
119	GND	–	Ground
120	IDE_CLK	I	5V Input Buffer (Schmitt in)
121	VDD	–	Power supply
122	IDECS1_N	O	TTL 5V Output Buffer (I_{OL} = 6 mA)
123	IDECS0_N	O	TTL 5V Output Buffer (I_{OL} = 6 mA)
124	IDEDA2	O	TTL 5V Output Buffer (I_{OL} = 6 mA)
125	IDEDA0	O	TTL 5V Output Buffer (I_{OL} = 6 mA)
126	SOUT	O	LVTTL Output Buffer (Low-noise : I_{OL} = 6 mA)
127	IDEDA1	O	TTL 5V Output Buffer (I_{OL} = 6 mA)
128	IDEINTRQ	I	5V Input Buffer (Schmitt in)
129	IDEDMACK_N	O	TTL 5V Output Buffer (I_{OL} = 6 mA)
130	VDD	–	Power supply
131	GND	–	Ground
132	IDEIORDY	I	5V Input Buffer (Schmitt in)
133	IDEIOR_N	O	TTL 5V Output Buffer (I_{OL} = 6 mA)
134	IDEIOW_N	O	TTL 5V Output Buffer (I_{OL} = 6 mA)
135	IDEDMARQ	I	5V Input Buffer (Schmitt in)
136	GND	–	Ground
137	IDEDD15	B	TTL 5V I/O Buffer (Schmitt in : I_{OL} = 6 mA) with pull-down Resistor 50K
138	IDEDD0	B	TTL 5V I/O Buffer (Schmitt in : I_{OL} = 6 mA) with pull-down Resistor 50K
139	GND	-	Ground
140	IDEDD14	B	TTL 5V I/O Buffer (Schmitt in : I_{OL} = 6 mA) with pull-down Resistor 50K
141	IDEDD1	B	TTL 5V I/O Buffer (Schmitt in : I_{OL} = 6 mA) with pull-down Resistor 50K
142	IDEDD13	B	TTL 5V I/O Buffer (Schmitt in : I_{OL} = 6 mA) with pull-down Resistor 50K
143	GND	–	Ground
144	VDD	–	Power supply
145	IDEDD2	B	TTL 5V I/O Buffer (Schmitt in : I_{OL} = 6 mA) with pull-down Resistor 50K
146	IDEDD12	B	TTL 5V I/O Buffer (Schmitt in : I_{OL} = 6 mA) with pull-down Resistor 50K
147	GND	–	Ground
148	IDEDD3	B	TTL 5V I/O Buffer (Schmitt in : I_{OL} = 6 mA) with pull-down Resistor 50K
149	IDEDD11	B	TTL 5V I/O Buffer (Schmitt in : I_{OL} = 6 mA) with pull-down Resistor 50K
150	IDEDD4	B	TTL 5V I/O Buffer (Schmitt in : I_{OL} = 6 mA) with pull-down Resistor 50K
151	GND	–	Ground
152	IDEDD10	B	TTL 5V I/O Buffer (Schmitt in : I_{OL} = 6 mA) with pull-down Resistor 50K
153	IDEDD5	B	TTL 5V I/O Buffer (Schmitt in : I_{OL} = 6 mA) with pull-down Resistor 50K
154	TMODE0	I	LVTTL Input Buffer
155	GND	–	Ground

No.	Pin Name	I/O	Function
156	GND	–	Ground
157	VDD	–	Power supply
158	TMODE1	I	LVTTL Input Buffer
159	IDEDD9	B	TTL 5V I/O Buffer (Schmitt in : I_{OL} = 6 mA) with pull-down Resistor 50K
160	IDEDD6	B	TTL 5V I/O Buffer (Schmitt in : I_{OL} = 6 mA) with pull-down Resistor 50K
161	IDEDD8	B	TTL 5V I/O Buffer (Schmitt in : I_{OL}= 6 mA) with pull-down Resistor 50K
162	GND	–	Ground
163	IDEDD7	B	TTL 5V I/O Buffer (Schmitt in : I_{OL} = 6 mA) with pull-down Resistor 50K
164	IDERST_N	O	TTL 5V Output Buffer (I_{OL} = 6 mA)
165	GPIO_8	B	TTL 5V I/O Buffer (Schmitt in : Low-noise : I_{OL} = 12 mA)
166	VD5	–	
167	GPIO_9	B	TTL 5V I/O Buffer (Schmitt in : Low-noise : I_{OL} = 12 mA)
168	GPIO_10	B	TTL 5V I/O Buffer (Schmitt in : Low-noise : I_{OL} = 12 mA)
169	GPIO_11	B	TTL 5V I/O Buffer (Schmitt in : Low-noise : I_{OL} = 12 mA)
170	GPIO_12	B	TTL 5V I/O Buffer (Schmitt in : Low-noise : I_{OL} = 12 mA)
171	GPIO_13	B	TTL 5V I/O Buffer (Schmitt in : Low-noise : I_{OL} = 12 mA)
172	GPIO_14	B	TTL 5V I/O Buffer (Schmitt in : Low-noise : I_{OL} = 12 mA)
173	GPIO_15	B	TTL 5V I/O Buffer (Schmitt in : Low-noise : I_{OL} = 12 mA)
174	FAN_CTL	O	LVTTL Output Buffer (Low-noise : I_{OL} = 6 mA)
175	GND	–	Ground
176	SP0_RXD	B	LVTTL I/O Buffer (Low-noise : I_{OL} = 6 mA)
177	SP0_TXD	O	LVTTL Output Buffer (Low-noise : I_{OL} = 6 mA)
178	SP1_RXD	B	LVTTL I/O Buffer (Low-noise : I_{OL} = 6 mA)
179	SP1_TXD	O	LVTTL Output Buffer (Low-noise : I_{OL} = 6 mA)
180	SP2_RXD	B	LVTTL I/O Buffer (Low-noise : I_{OL} = 6 mA)
181	SP2_TXD	O	LVTTL Output Buffer (Low-noise : I_{OL} = 6 mA)
182	GND	–	Ground
183	VDD	–	Power supply
184	TS_CLK	B	LVTTL I/O Buffer (Low-noise : I_{OL} = 6 mA)
185	TS_DATA	O	LVTTL Output Buffer (Low-noise : I_{OL} = 6 mA)
186	TS_SYNC	O	LVTTL Output Buffer (Low-noise : I_{OL} = 6 mA)
187	TS_VALID	O	LVTTL Output Buffer (Low-noise : I_{OL} = 6 mA)
188	IR_PORT1_OUT	O	TTL 5V Output Buffer (Low-noise : I_{OL} = 12 mA)
189	IR_PORT2_OUT	O	TTL 5V Output Buffer (Low-noise : I_{OL} = 12 mA)
190	IR_PORT1_IN	I	5V Input Buffer (Schmitt in)
191	IR_PORT2_IN	I	5V Input Buffer (Schmitt in)
192	GNT5_N	O	5V PCI Output Buffer
193	REQ5_N	I	5V PCI Input Buffer
194	GNT4_N	O	5V PCI Output Buffer
195	REQ4_N	I	5V PCI Input Buffer
196	GNT3_N	O	5V PCI Output Buffer
197	REQ3_N	I	5V PCI Input Buffer
198	GNT2_N	O	5V PCI Output Buffer
199	REQ2_N	I	5V PCI Input Buffer
200	GNT1_N	O	5V PCI Output Buffer
201	REQ1_N	I	5V PCI Input Buffer
202	GNT0_N	O	5V PCI Output Buffer
203	REQ0_N	I	5V PCI Input Buffer
204	GNT_N	I	5V PCI Input Buffer
205	REQ_N	O	5V PCI 3-State Output Buffer
206	INTA_N	O	5V PCI 3-State Output Buffer
207	VCLK	I	LVTTL Input Buffer
208	VDD	–	Power supply

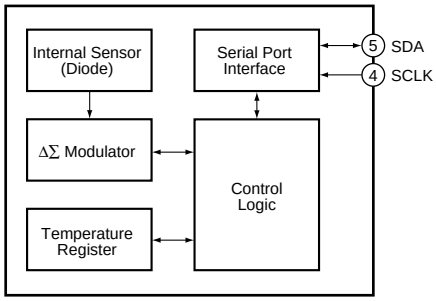
TC74A5-3.3VCT (MAIN ASSY : IC4201)

• Tiny Serial Digital Thermal Sensor

● Pin Arrangement (Top view)



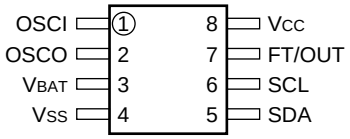
● Block Diagram



M41T00M6 (MAIN ASSY : IC4202)

• Serial Timekeeper

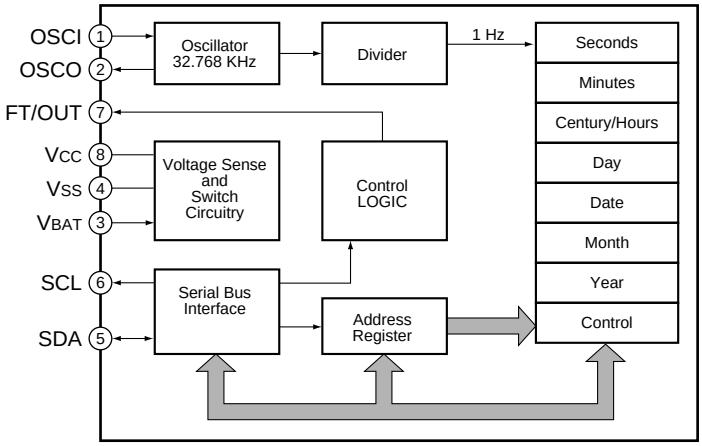
● Pin Arrangement (Top view)



● Pin Function

No.	Pin Name	I/O	Function
1	OSCI	I	Oscillator Input
2	OSCO	O	Oscillator Output
3	VBAT	I	Battery Supply Voltage
4	VSS	–	Ground
5	SDA	I/O	Serial Data Address Input/Output
6	SCL	O	Serial Clock
7	FT/OUT	O	Frequency Test/Output Driver (Open Drain)
8	VCC	–	Supply Voltage

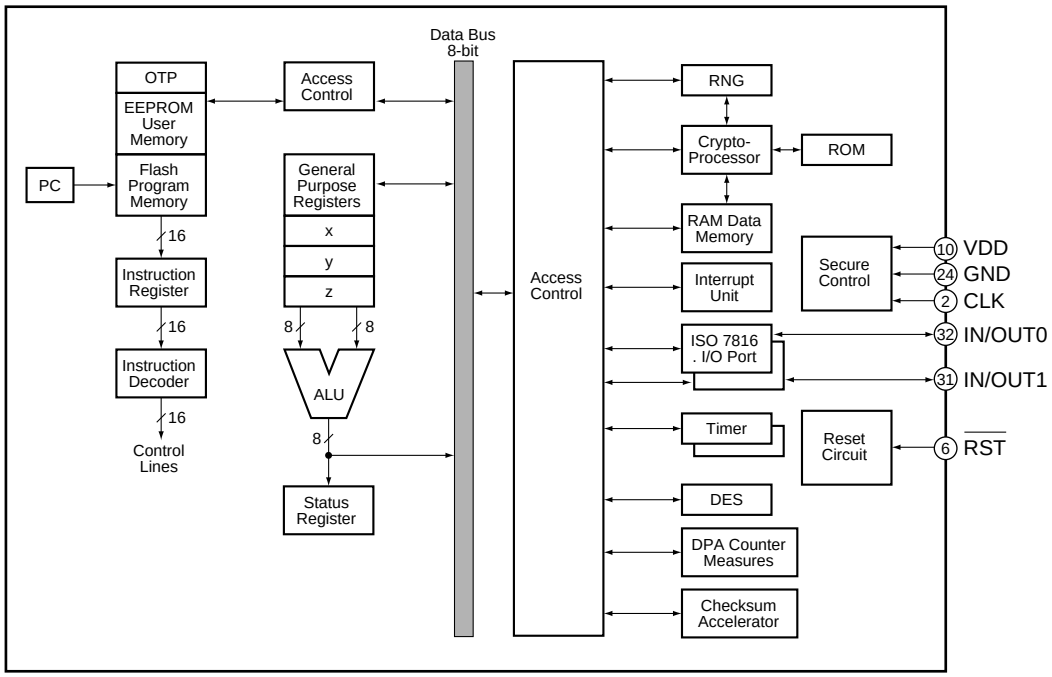
● Block Diagram



AT90SC6464C-AL (MAIN ASSY : IC4401)

- Secure Micro

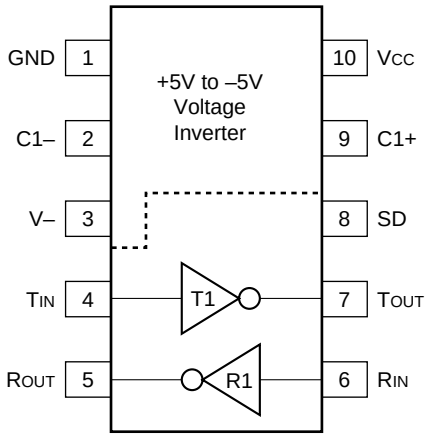
● Block Diagram



ADM101EARM (MAIN ASSY : IC4501)

• RS232 Transceiver

● Block Diagram



● Pin Function

No.	Pin Name	I/O	Function
1	GND	–	Ground Pin. Must be connected to 0V.
2	C1–	–	Negative Terminal of C1 (if C1 is polarized Capacitor).
3	V–	–	Internally Generated Negative Supply Voltage.
4	TIN	I	Driver Input (3V to 5V TTL/CMOS Logic Levels).
5	ROUT	O	Receiver Output (3V to 5V TTL/CMOS Logic Levels).
6	RIN	I	Receiver Input (EIA-232 Signal Levels).
7	TOUT	O	Driver Output (EIA-232 Signal Levels).
8	SD	I	Shutdown Input. Logic 1 on this input puts the ADM101EARM into low power shutdown mode.
9	C1+	–	Positive Terminal of Charge Pump Capacitor (if C1 is Polarized Capacitor).
10	VCC	–	Positive Power Supply, Nominally 5V.

XC2S15-5TQ144C (MAIN ASSY : IC5402)

• PLD IC

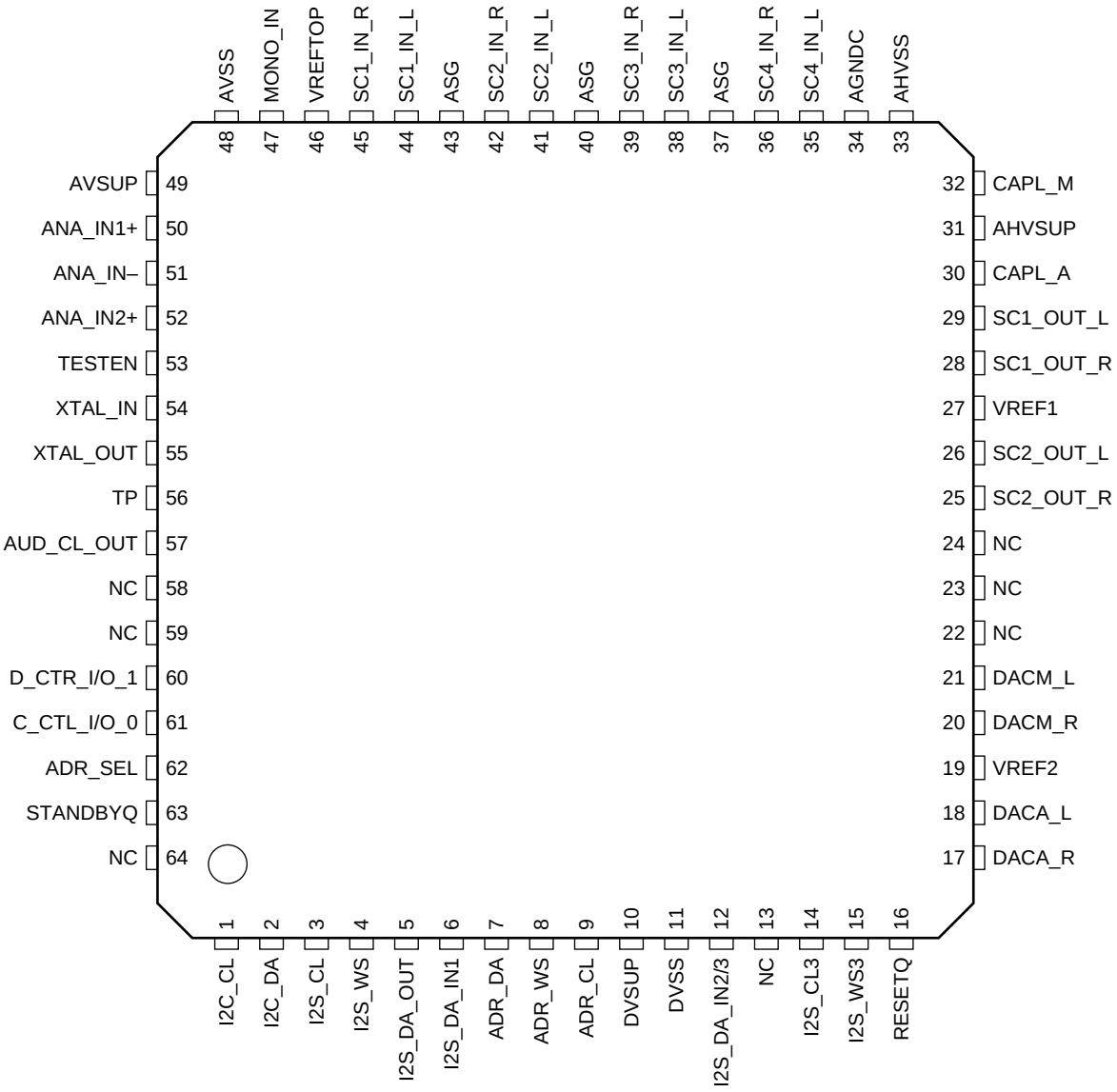
● Pin Function

No.	Pin Name	I/O	Pin Function
15, 18, 88, 91	GCK0, GCK1, GCK2, GCK3	I	Clock input pins that connected to Global Clock Buffers. These pins become user inputs when not needed for clocks.
109, 111, 106	M0, M1, M2	I	Mode pins are used to specify the configuration mode.
37	CCLK	I/O	The configuration Clock I/O pin. It is an input for slave-parallel and slave-serial modes, and output in master-serial mode.
69	$\overline{\text{PROGRAM}}$	I	Initiates a configuration sequence when asserted Low.
72	DONE	Bidirectional	Indicates that configuration loading is complete, and that the start-up sequence is in progress. The output may be open drain.
68	$\overline{\text{INIT}}$	Bidirectional	When Low, indicates that the configuration memory is being cleared. This pin becomes a user I/O after configuration.
38	BUSY/DOUT	O	In Slave Parallel mode, BUSY controls the rate at which configuration data is loaded. This pin becomes a user I/O after configuration unless the Slave Parallel port is retained. In serial mode, DOUT provides configuration data to downstream devices in a daisy-chain. This pin becomes a user I/O after configuration.
39,44,46,49, 57,60,62,67	D0/DIN,D1,D2, D3,D4,D5,D6,D7	I/O	In Slave Parallel mode, D0-D7 are configuration data input pins. During readback, D0-D7 are output pins. These pins become user I/Os after configuration unless the Slave Parallel port is retained. In serial modes, DIN is the single data input. This pin becomes a user I/O after configuration.
30	$\overline{\text{WRITE}}$	I	In Slave Parallel mode, the active-low Write Enable signal. This pin becomes a user I/O after configuration unless the Slave Parallel port is retained.
31	$\overline{\text{CS}}$	I	In Slave Parallel mode, the active-low Chip Select signal. This pin becomes a user I/O after configuration unless the Slave Parallel port is retained.
32,34,142,2	TDI, TDO, TMS, TCK	Mixed	Boundary Scan Test Access Port pins (IEEE 1149.1).
97	VCCINT	I	Power supply pins for the internal core logic.
1,16,35,36,53, 70,71,90,107, 108,127,144	VCCO	I	Power supply pins for output drivers (subject to banking rules).
5,12,21,28,41, 48,58,65,77, 85,94,102,115, 122,132,139	VREF	I	Input threshold voltage pins. Become user I/O when an external threshold voltage is not needed (subject to banking rules).
8,17,25,33,45, 52,61,73,81, 89,98,110,119, 128,135,143	GND	I	Ground
51, 54	IRDY, TRDY	-	These signals can only be accessed when using Xilinx PCI cores. If the cores are not used, these pins are available as user I/O.
3,4,6,7,10,11, 13,19,20,22, 23,26,27,29, 40,43,47,50, 56,59,63,66, 74-76,79,80, 83,84,86,87, 93,95,96,99, 100,103,112-114,117,118, 120,121,123, 124,130,131, 133,134,136, 137,140,141	I/O	I/O	Input and Output pins.
42,64,78,101, 104,105,116, 138	NC	-	Not connected

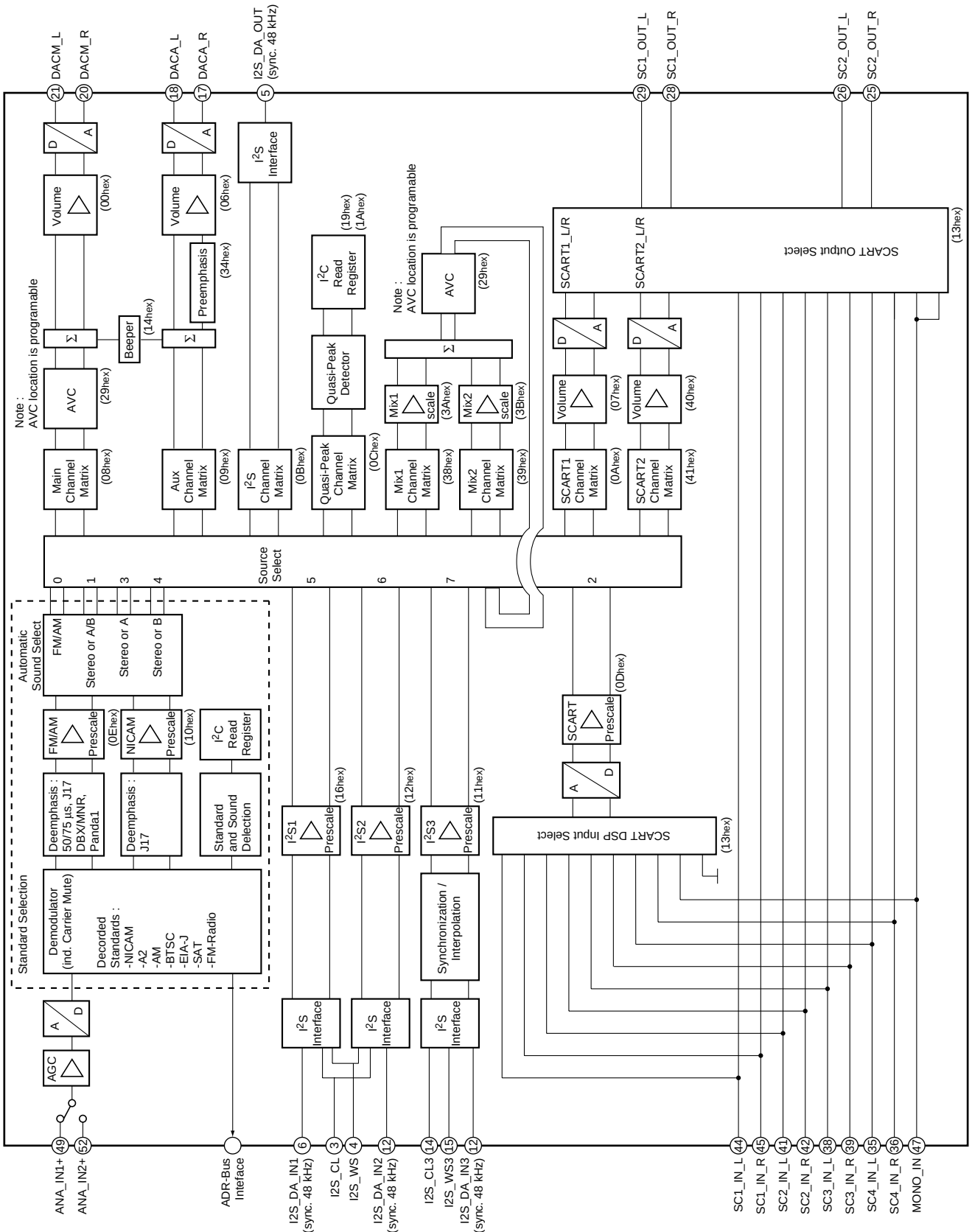
MSP4448G-FH-A2 (MAIN ASSY : IC8501)

• BTSC Decoder

● Pin Arrangement (Top view)



● Block Diagram



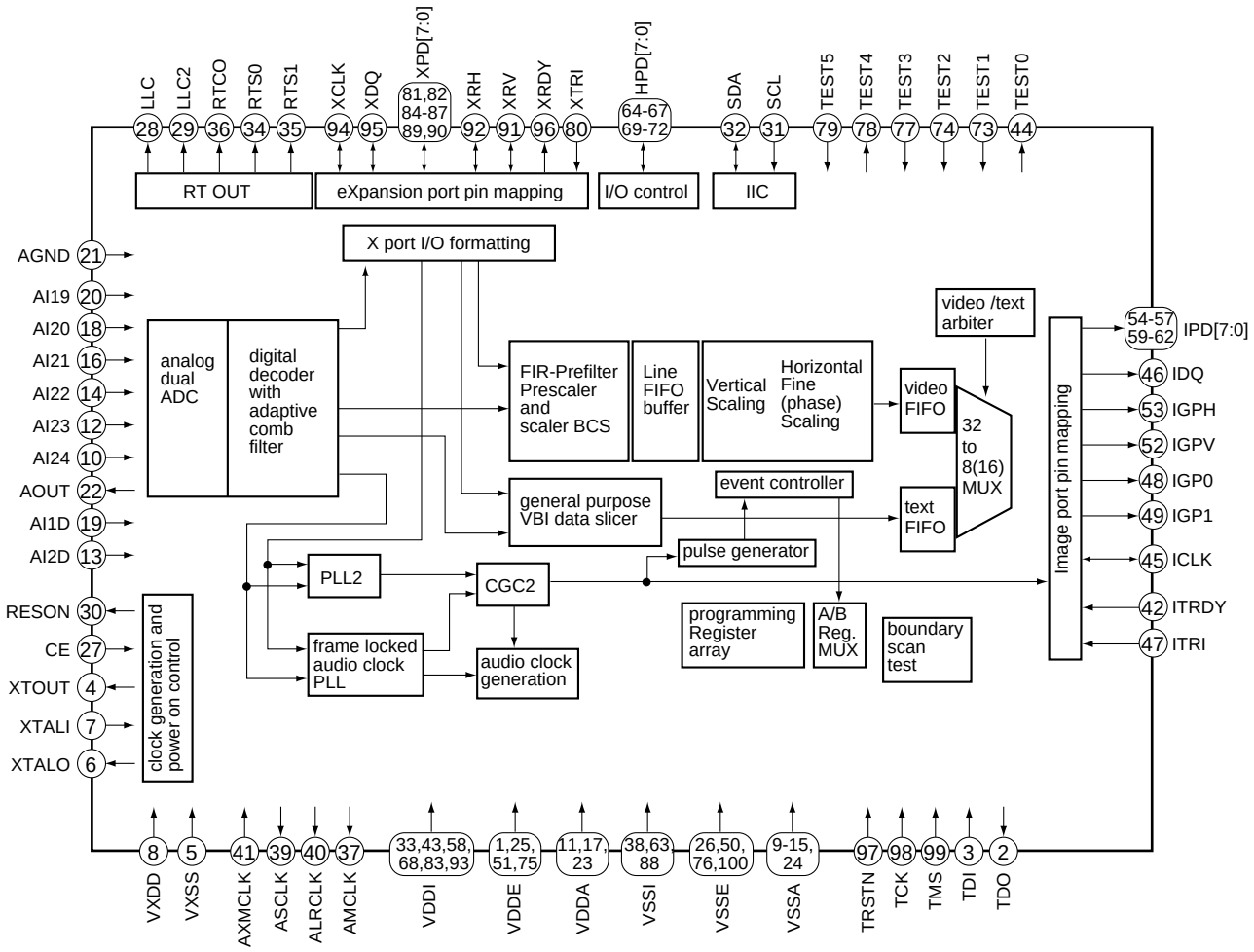
● Pin Function

No.	Pin Name	I/O	Function	No.	Pin Name	I/O	Function
1	I2C_CL	I/O	I²C clock	33	AHVSS	–	Analog ground
2	I2C_DA	I/O	I²C data	34	AGNDC	–	Analog reference voltage
3	I2S_CL	I/O	I²S clock	35	SC4_IN_L	I	SCRAT 4 input, left
4	I2S_WS	I/O	I²S word strobe	36	SC4_IN_R	I	SCRAT 4 input, right
5	I2S_DA_OUT	O	I²S data output	37	ASG	–	Analog sheild ground
6	I2S_DA_IN1	I	I²S1 data input	38	SC3_IN_L	I	SCRAT 3 input, left
7	ADR_DA	O	ADR data output	39	SC3_IN_R	I	SCRAT 3 input, right
8	ADR_WS	O	ADR word strobe	40	ASG	–	Analog sheild ground
9	ADR_CL	O	ADR clock	41	SC2_IN_L	I	SCRAT 2 input, left
10	DVSUP	–	Digital power supply +5V	42	SC2_IN_R	I	SCRAT 2 input, right
11	DVSS	–	Digital ground	43	ASG	–	Analog sheild ground
12	I2S_DA_IN2/3	I	I²S2/3-data input	44	SC1_IN_L	I	SCRAT 1 input, left
13	NC	–	Not connected	45	SC1_IN_R	I	SCRAT 1 input, right
14	I2S_CL3	I	I²S3 clock	46	VREFTOP	–	Reference voltage IF A/D converter
15	I2S_WS3	I	I²S3 word strobe	47	MONO_IN	I	Mono input
16	RESETQ	I	Power-on-reset	48	AVSS	–	Analog ground
17	DACA_R	O	Aux out, right	49	AVSUP	–	Analog power supply +5V
18	DACA_L	O	Aux out, left	50	ANA_IN1+	I	IF input 1
19	VREF2	–	Reference ground 2	51	ANA_IN–	I	IF common (Can be left vacant, only if IF input 1 is also not in use)
20	DACM_R	O	Main out, right	52	ANA_IN2+	I	IF input 2 (Can be left vacant, only if IF input 1 is also not in use)
21	DACM_L	O	Main out, left	53	TESTEN	I	Test pin
22	NC	–	Not connected	54	XTAL_IN	I	Crystal oscillator
23	NC	–	Not connected	55	XTAL_OUT	O	Crystal oscillator
24	NC	–	Not connected	56	TP	–	Test pin
25	SC2_OUT_R	O	SCART output 2, right	57	AUD_CL_OUT	O	Audio clock output (18.432 MHz)
26	SC2_OUT_L	O	SCART output 2, left	58	NC	–	Not connected
27	VREF1	–	Reference ground 1	59	NC	–	Not connected
28	SC1_OUT_R	O	SCART output 1, right	60	D_CTR_I/O_1	I/O	D_CTR_I/O_1
29	SC1_OUT_L	O	SCART output 1, left	61	D_CTR_I/O_0	I/O	D_CTR_I/O_0
30	CAPL_A	–	Volume capacitor Aux	62	ADR_SEL	I	I²C Bus address select
31	AHVSUP	–	Analog power supply 8.0V	63	STANDBYQ	I	Stand-by (low-active)
32	CAPL_M	–	Volume capacitor Main	64	NC	–	Not connected

SAA7115HL/V1 (MAIN ASSY : IC8801)

• DDEC IC

● Block Diagram



● Pin Function

No.	Pin Name	I/O	Pin Function
1	VDDE	–	Digital supply voltage 3.3V (external pad supply)
2	TDO	O	Test Data Output for Boundary Scan Test
3	TDI	I	Test Data Input for Baundary Scan Test (with internal pull-up)
4	XTOUT	O	Crystal oscillator output signal, auxiliary signal
5	VXSS	–	Ground pin for crystal oscillator
6	XTALO	O	24.576 (32.11) MHz crystal oscillator output; not connected if XTAL is driven by an external single-ended oscillator.
7	XTALI	I	Input terminal for 24.576 (32.11) MHz crystal oscillator or connection of external oscillator with TTL compatible square wave clock signal.
8	VXDD	–	Supply voltage pin of crystal oscillator
9	VSSA2	–	Ground for analog inputs AI2x
10	AI24	I	Analog input 24

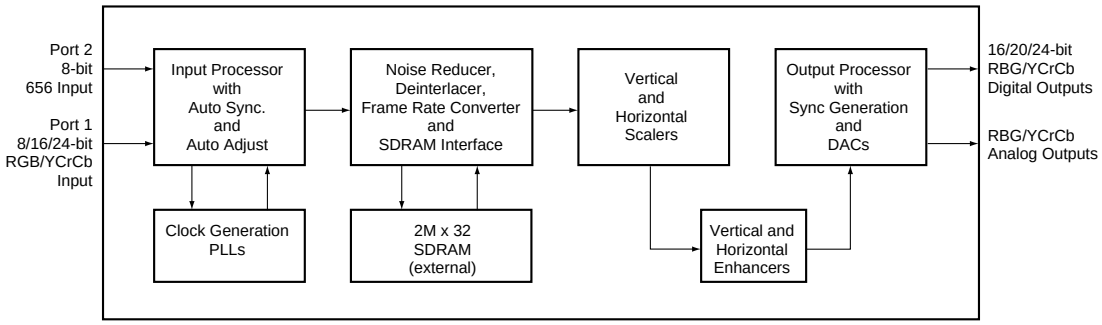
No.	Pin Name	I/O	Pin Function
11	VDDA2	–	Analog supply voltage for analog inputs AI2x (3.3V)
12	AI23	I	Analog input 23
13	AI2D	I	Differential input for ADC channel 2 (pins AI24, AI23, AI22, AI21)
14	AI22	I	Analog input 22
15	VSSA1	–	Ground for analog inputs AI1x
16	AI21	I	Analog input 21
17	VDDA1	–	Analog supply voltage for analog inputs AI1x (3.3V)
18	AI12	I	Analog input 12
19	AI1D	I	Differential input for ADC channel 1 (pins AI12, AI11)
20	AI11	I	Analog input 11
21	AGND	–	Analog ground connection
22	AOUT	O	Analog test output (do not connect)
23	VDDA0	–	Analog positive supply voltage for both internal CGC (Clock Generation Circuit) (3.3V)
24	VSSA0	–	Analog ground for internal CGC
25	VDDE	–	Digital supply voltage 3.3V (external pad supply)
26	VSSE	–	Digital ground (external pad supply)
27	CE	I	Chip Enable or RESET input (with internal pull up)
28	LLC	O	Line-locked system clock output (27 MHz nominal), for backward compatibility, do not use for new applications
29	LLC2	O	Line-locked clock/2 output (13.5 MHz nominal) for backward compatibility, do not use for new applications
30	RESON	O	RESet Output Not signal
31	SCL	I(/O)	IIC serial clock line (with inactive output path)
32	SDA	I/O	IIC serial data line
33	VDDI	–	Digital supply voltage 3.3V (internal core supply)
34	RTS0	O	Real time status or sync information, controlled by subaddr. "11h and 12h"
35	RTSI	I	Real time status or sync information, controlled by subaddr. "11h and 12h"
36	RTCO	(I/)O	Real Time Control Output
37	AMCLK	O	Audio master clock output
38	VSSI	–	Digital ground (internal core supply)
39	ASCLK	O	Audio serial clock output
40	ALRCLK	(I/)O	Audio left/right clock output
41	AMXCLK	I	Audio master external clock input (typing error corrected)
42	ITRDY	I	Target ready input, image port (with internal pull up)
43	VDDI	–	Digital supply voltage 3.3V (internal core supply)
44	TEST0	O	Do not connect, reserved for future extensions and for Testing: scan output
45	ICLK	I/O	Clock output signal for image-port, LCLK of LPB image port mode, or optional asynchron. Backend clock input
46	IDQ	O	Output data qualifier for image port (optional: gated clock output)
47	ITRI	I(/O)	Image-port output control signal, effects all I-port pins incl. ICLK, enable and active polarity is under software control (bits IPE in subaddr. "87") output path used for Testing: scan output
48	IGP0	O	General purpose output signal 0; image-port (controlled by subaddr, "84", "85")
49	IGP1	O	General purpose output signal 1; image-port (controlled by subaddr, "84", "85"), same functions as IGP0
50	VSSE	–	Digital ground (external pad supply)
51	VDDE	–	Digital supply voltage 3.3V (external pad supply)
52	IGPV	O	Multi purpose vertical reference output signal; image-port (controlled by subaddr. "84", "85")
53	IGPH	O	Multi purpose horizontal reference output signal; image-port (controlled by subaddr. "84", "85")
54	IPD7	O	Image port data output
55	IPD6	O	

No.	Pin Name	I/O	Pin Function
56	IPD5	O	Image port data output
57	IPD4	O	
58	VDDI	–	Digital supply voltage 3.3V (internal core supply)
59	IPD3	O	Image port data output
60	IPD2	O	
61	IPD1	O	
62	IPD0	O	
63	VSSI	–	Digital ground (internal core supply)
64	HPD7	I/O	Host port data I/O, carries UV chrominance information in 16 bit video I/O modes
65	HPD6	I/O	
66	HPD5	I/O	
67	HPD4	I/O	
68	VDDI	–	Digital supply voltage 3.3V (internal core supply)
69	HPD3	I/O	Host port data I/O, carries UV chrominance information in 16 bit video I/O modes
70	HPD2	I/O	
71	HPD1	I/O	
72	HPD0	I/O	
73	TEST1	I	Do not connect, reserved for future extensions and for Testing: scan input
74	TSET2	I	Do not connect, reserved for future extensions and for Testing: scan input
75	VDDE	–	Digital supply voltage 3.3V (external pade supply)
76	VSSE	–	Digital ground (external pad supply)
77	TEST3	I	Do not connect, reserved for future extensions and for Testing: scan input
78	TEST4	O	Do not connect, reserved for future extensions and for Testing: scan output
79	TEST5	I	Do not connect, reserved for future extensions and for Testing: scan input
80	XTRI	I	X-port output control signal, effects all X-port pins (XPD[7:0], XRH, XRV, XDQ and XCLK) Enable and active polarity is under software control (bits XPE in subaddr. "83")
81	XPD7	I/O	Expansion-port data: In eight bit video output mode: these signal represent the video bits 7 to 6. In ten bit video output mode: these signal represent the video bits 9 to 8.
82	XPD6	I/O	
83	VDDI	–	Digital supply voltage 3.3V (internal core supply)
84	XPD5	I/O	Expansion-port data: In eight bit video output mode: these signal represent the video bits 5 to 2. In ten bit video output mode: these signal represent the video bits 7 to 4.
85	XPD4	I/O	
86	XPD3	I/O	
87	XPD2	I/O	
88	VSSI	–	Digital ground (internal core supply)
89	XPD1	I/O	Expansion-port data: In eight bit video output mode: these signal represent the video bits 1 to 0. In ten bit video output mode: these signal represent the video bits 3 to 2.
90	XPD0	I/O	
91	XRV	I/O	Vertical reference I/O expansion-port: Inten bit video output mode: this signal represents the video bit 0.
92	XRH	I/O	Horizontal reference I/O expansion-port: Inten bit video output mode: this signal represents the video bit 1.
93	VDDI	–	Digital supply voltage 3.3V (internal core supply)
94	XCLK	I/O	Clock I/O expansion port
95	XDQ	I/O	Data qualifier I/O expansion port
96	XRDY	O	Task flag or read signal from scaler, controlled by XRQT (subaddr. 83H)
97	TRSTN	I	Test ReSeT Not for Boundary Scan Test (with internal pull-up); for board design without Boundary Scan connect TRSTN to 'ground'
98	TCK	I	Test Clock for Boundary Scan Test (with internal pull-up)
99	TMS	I	Test Mode Select for Boundary Scan Test or Scan Test (with internal pull-up)
100	VSSE	–	Digital ground (external pad supply)

FLI2301-BC (MAIN ASSY : IC9001)

• Digital Video Converter

● Block Diagram



● Pin Functions

No.	Pin Name	I/O	Function
1	HSYNC1_PORT1	I	Horizontal sync or reference-CTL1 of Port 1
2	VSYNC1_PORT1	I	Vertical sync or reference-CTL1 of Port 1
3	FIELD_ID1_PORT1	I	Odd/Even Field identification-CTL1 of Port 1
4	IN_CLK1_PORT1	I	Data Clock input-CTL1 of Port 1
5	HSYNC2_PORT1	I	Horizontal sync or reference-CTL2 of Port 1
6	VSYNC2_PORT1	I	Vertical sync or reference-CTL2 of Port 1
7	FIELD_ID2_PORT1	I	Odd/Even Field identification-CTL2 of Port 1
8	VDD1	–	3.3V-Power pin for I/O
9	VSS	–	Ground
10	IN_CLK2_PORT1	I	Data Clock input-CTL2 of Port 1
11	B/Cb/D1_0	I	Port 1-Digital video input (Blue/Cb/D1)
12	B/Cb/D1_1	I	Port 1-Digital video input (Blue/Cb/D1)
13	B/Cb/D1_2	I	Port 1-Digital video input (Blue/Cb/D1)
14	B/Cb/D1_3	I	Port 1-Digital video input (Blue/Cb/D1)
15	B/Cb/D1_4	I	Port 1-Digital video input (Blue/Cb/D1)
16	VDDcore1	–	1.8V-Power pin for core
17	VSScore	–	Ground
18	B/Cb/D1_5	I	Port 1-Digital video input (Blue/Cb/D1)
19	B/Cb/D1_6	I	Port 1-Digital video input (Blue/Cb/D1)
20	B/Cb/D1_7	I	Port 1-Digital video input (Blue/Cb/D1)
21	R/Cr/CbCr_0	I	Port 1-Digital video input (Red/Cr/CrCb)
22	R/Cr/CbCr_1	I	Port 1-Digital video input (Red/Cr/CrCb)
23	R/Cr/CbCr_2	I	Port 1-Digital video input (Red/Cr/CrCb)
24	R/Cr/CbCr_3	I	Port 1-Digital video input (Red/Cr/CrCb)
25	R/Cr/CbCr_4	I	Port 1-Digital video input (Red/Cr/CrCb)
26	R/Cr/CbCr_5	I	Port 1-Digital video input (Red/Cr/CrCb)
27	R/Cr/CbCr_6	I	Port 1-Digital video input (Red/Cr/CrCb)
28	R/Cr/CbCr_7	I	Port 1-Digital video input (Red/Cr/CrCb)
29	G/Y/Y_0	I	Port 1-Digital video input (Green/Y)
30	VDD2	–	3.3V-Power pin for I/O
31	VSS	–	Ground
32	G/Y/Y_1	I	Port 1-Digital video input (Green/Y)
33	G/Y/Y_2	I	Port 1-Digital video input (Green/Y)
34	G/Y/Y_3	I	Port 1-Digital video input (Green/Y)
35	G/Y/Y_4	I	Port 1-Digital video input (Green/Y)
36	VDDcore2	–	1.8V-Power pin for core
37	VSScore	–	Ground
38	G/Y/Y_5	I	Port 1-Digital video input (Green/Y)
39	G/Y/Y_6	I	Port 1-Digital video input (Green/Y)
40	G/Y/Y_7	I	Port 1-Digital video input (Green/Y)

No.	Pin Name	I/O	Function
41	IN_SEL	O	Output to select external video mux
42	TEST	I	Connect to Ground
43	DEV_ADDR1	I	Device address setting 1
44	DEV_ADDR0	I	Device address setting 0
45	SCLK	I/O	2-wire serial control bus clock
46	SDATA	I/O	2-wire serial control bus data
47	Reset_N	I	Reset
48	VDD3	–	3.3V-Power pin for I/O
49	VSS	–	Ground
50	SDRAM DATA (0)	I/O	SDRAM data bus
51	SDRAM DATA (1)	I/O	SDRAM data bus
52	SDRAM DATA (2)	I/O	SDRAM data bus
53	SDRAM DATA (3)	I/O	SDRAM data bus
54	SDRAM DATA (4)	I/O	SDRAM data bus
55	SDRAM DATA (5)	I/O	SDRAM data bus
56	SDRAM DATA (6)	I/O	SDRAM data bus
57	SDRAM DATA (7)	I/O	SDRAM data bus
58	SDRAM DATA (8)	I/O	SDRAM data bus
59	SDRAM DATA (9)	I/O	SDRAM data bus
60	SDRAM DATA (10)	I/O	SDRAM data bus
61	SDRAM DATA (11)	I/O	SDRAM data bus
62	VDD4	–	3.3V-Power pin for I/O
63	VSS	–	Ground
64	SDRAM DATA (12)	I/O	SDRAM data bus
65	SDRAM DATA (13)	I/O	SDRAM data bus
66	SDRAM DATA (14)	I/O	SDRAM data bus
67	SDRAM DATA (15)	I/O	SDRAM data bus
68	VDDcore3	–	3.3V-Power pin for core
69	VSScore	–	Ground
70	SDRAM DATA (16)	I/O	SDRAM data bus
71	SDRAM DATA (17)	I/O	SDRAM data bus
72	SDRAM DATA (18)	I/O	SDRAM data bus
73	SDRAM DATA (19)	I/O	SDRAM data bus
74	SDRAM DATA (20)	I/O	SDRAM data bus
75	SDRAM DATA (21)	I/O	SDRAM data bus
76	SDRAM DATA (22)	I/O	SDRAM data bus
77	SDRAM DATA (23)	I/O	SDRAM data bus
78	SDRAM DATA (24)	I/O	SDRAM data bus
79	SDRAM DATA (25)	I/O	SDRAM data bus
80	VDDcore4	–	3.3V-Power pin for core
81	VSScore	–	Ground
82	SDRAM DATA (26)	I/O	SDRAM data bus
83	SDRAM DATA (27)	I/O	SDRAM data bus
84	SDRAM DATA (28)	I/O	SDRAM data bus
85	SDRAM DATA (29)	I/O	SDRAM data bus
86	SDRAM DATA (30)	I/O	SDRAM data bus
87	SDRAM DATA (31)	I/O	SDRAM data bus
88	VDD5	–	3.3V-Power pin for I/O
89	VSS	–	Ground
90	TEST IN	I	Test input-Connect to ground

No.	Pin Name	I/O	Function
91	SDRAM ADDR (10)	O/P	SDRAM address bus
92	SDRAM ADDR (9)	O/P	SDRAM address bus
93	SDRAM ADDR (8)	O/P	SDRAM address bus
94	SDRAM ADDR (7)	O/P	SDRAM address bus
95	SDRAM ADDR (6)	O/P	SDRAM address bus
96	VDDcore5	–	1.8V-Power pin for core
97	VSScore	–	Ground
98	SDRAM ADDR (5)	O/P	SDRAM address bus
99	SDRAM ADDR (4)	O/P	SDRAM address bus
100	SDRAM ADDR (3)	O/P	SDRAM address bus
101	SDRAM ADDR (2)	O/P	SDRAM address bus
102	SDRAM ADDR (1)	O/P	SDRAM address bus
103	SDRAM ADDR (0)	O/P	SDRAM address bus
104	SDRAM WEN	O/P	SDRAM write enable
105	SDRAM RASN	O/P	SDRAM row address select
106	SDRAM CASN	O/P	SDRAM column address select
107	SDRAM BA1	O/P	SDRAM bank select 1
108	SDRAM BA0	O/P	SDRAM bank select 0
109	SDRAM CSN	O/P	SDRAM CS
110	SDRAM DQM	O/P	SDRAM DQM
111	SDRAM CLKOUT	O	Clock out to SDRAM
112	VDD6	–	3.3V-Power pin for I/O
113	VSS	–	Ground
114	SDRAM CLKIN	I	Trace delayed SDRAM Clock in
115	TEST3	I	Test input-Connect to ground
116	TEST OUT0	O	Test output-leave open
117	TEST OUT1	O	Test output-leave open
118	CTLOUT0	O/P	Control signal output selectable as HSync1/CSync/HRef/Monitor coast
119	CTLOUT1	O/P	Control signal output selectable as VSync1/CRef/VRef/Film Indicator
120	CTLOUT2	O/P	Control signal output selectable as Monitor coast/HRef/VDD_en/HSync2
121	CTLOUT3	O/P	Control signal output selectable as Film Indicator/VRef/backlight_en/VSync2
122	CTLOUT4	O/P	Control signal output selectable as CRef/Field ID/CSync/Monitor coast
123	VDDcore6	–	1.8V-Power pin for core
124	VSScore	–	Ground
125	CLKOUT	O/P	Output data rate clock
126	B/U/Pb_OUT_0	O/P	Digital video output-Blue/U/Pb
127	B/U/Pb_OUT_1	O/P	Digital video output-Blue/U/Pb
128	VDD7	–	3.3V-Power pin for I/O
129	VSS	–	Ground
130	B/U/Pb_OUT_2	O/P	Digital video output-Blue/U/Pb
131	B/U/Pb_OUT_3	O/P	Digital video output-Blue/U/Pb
132	B/U/Pb_OUT_4	O/P	Digital video output-Blue/U/Pb
133	B/U/Pb_OUT_5	O/P	Digital video output-Blue/U/Pb
134	B/U/Pb_OUT_6	O/P	Digital video output-Blue/U/Pb
135	B/U/Pb_OUT_7	O/P	Digital video output-Blue/U/Pb
136	R/V/Pr_OUT_0	O/P	Digital video output-Red/V/Pr
137	R/V/Pr_OUT_1	O/P	Digital video output-Red/V/Pr
138	VDDcore7	–	1.8V-Power pin for core
139	VSScore	–	Ground
140	R/V/Pr_OUT_2	O/P	Digital video output-Red/V/Pr

No.	Pin Name	I/O	Function
141	R/V/Pr_OUT_3	O/P	Digital video output-Red/V/Pr
142	R/V/Pr_OUT_4	O/P	Digital video output-Red/V/Pr
143	R/V/Pr_OUT_5	O/P	Digital video output-Red/V/Pr
144	R/V/Pr_OUT_6	O/P	Digital video output-Red/V/Pr
145	R/V/Pr_OUT_7	O/P	Digital video output-Red/V/Pr
146	VDD8	–	3.3V-Power pin for I/O
147	VSS	–	Ground
148	G/Y/Y_OUT_0	O/P	Digital video output-Green/Y
149	G/Y/Y_OUT_1	O/P	Digital video output-Green/Y
150	G/Y/Y_OUT_2	O/P	Digital video output-Green/Y
151	G/Y/Y_OUT_3	O/P	Digital video output-Green/Y
152	G/Y/Y_OUT_4	O/P	Digital video output-Green/Y
153	G/Y/Y_OUT_5	O/P	Digital video output-Green/Y
154	G/Y/Y_OUT_6	O/P	Digital video output-Green/Y
155	G/Y/Y_OUT_7	O/P	Digital video output-Green/Y
156	OE	I	Output data enable for Digital video output
157	PLL_PVDD	–	1.8V-Power pin for PLL pads
158	PLL_PVSS	–	Ground for PLL pads
159	AVSS_PLL_BE1	–	PLL Ground
160	AVDD_PLL_BE1	–	1.8V-Power pin for PLL
161	AVDD_PLL_BE2	–	1.8V-Power pin for PLL
162	AVSS_PLL_BE2	–	PLL Ground
163	AVSS_PLL_SDI	–	PLL Ground
164	AVDD_PLL_SDI	–	1.8V-Power pin for PLL
165	AVDD_PLL_FE	–	1.8V-Power pin for PLL
166	AVSS_PLL_FE	–	PLL Ground
167	DAC_PVSS	–	Ground for DAC pads
168	DAC_VDD	–	1.8V-Digtal power pin for DAC
169	DAC_VSS	–	DAC digital ground
170	DAC_BOUT	O	Analog B/U output
171	DAC_AVDDB	–	3.3V-Analog power pin for B channel
172	DAC_AVSSB	–	Analog Ground for B channel
173	DAC_GOUT	O	Analog G/Y output
174	DAC_AVDDG	–	3.3V-Analog power pin for G channel
175	DAC_AVSSG	–	Analog Ground for G channel
176	DAC_ROUT	O	Analog R/V output
177	DAC_AVDDR	–	3.3V-Analog power pin for R channel
178	DAC_AVSSR	–	Analog Ground for R channel
179	DAC_COMP	O	Compensation for video DACs
180	DAC_RSET	O	Current setting resistor for video DACs
181	DAC_VREFOUT	O	1.28V Internally generated voltage reference for video DACs
182	DAC_VREFIN	I	External Voltage reference for video DACs
183	DAC_AVDD	–	3.3V-Analog power pin for DAC
184	DAC_AVSS	–	Analog Ground for DAC
185	DAC_GR_AVSS	–	Ground for DAC Guard ring
186	DAC_GR_AVDD	–	3.3V-Power pin for DAC Guard ring
187	DAC_PVDD	–	3.3V-Power pin for DAC pads
188	TEST0	I	Test pin-connect to ground
189	TEST1	I	Test pin-connect to ground
190	TEST2	I	Test pin-connect to ground

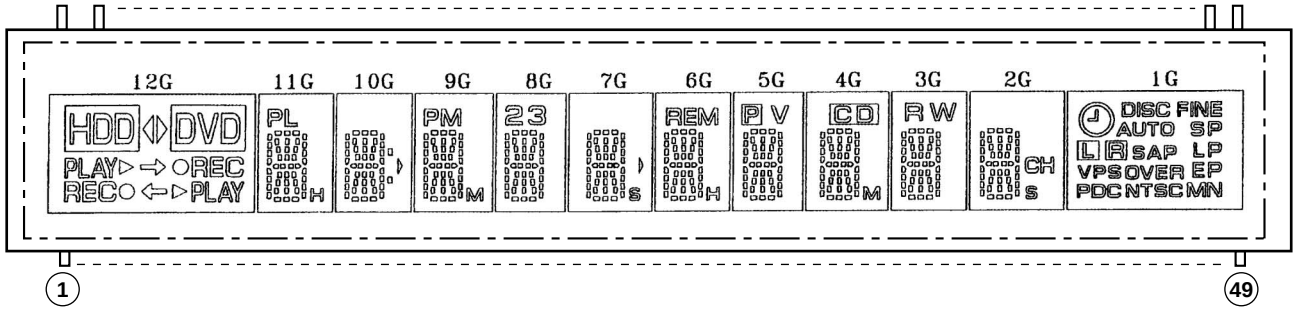
No.	Pin Name	I/O	Function
191	XTAL IN	I	External parallel crystal oscillator
192	XTAL OUT	O	External parallel crystal oscillator
193	VDD9	–	3.3V-Power pin for I/O
194	VSS	–	Ground
195	IN_CLK_PORT2	I	Port 2-Data Clock input
196	D1_IN_0	I	Port 2-ITU-R BT656 digital data input
197	VDDcore8	–	1.8V-Power pin for core
198	VSScore	–	Ground
199	D1_IN_1	I	Port 2-ITU-R BT656 digital data input
200	D1_IN_2	I	Port 2-ITU-R BT656 digital data input
201	D1_IN_3	I	Port 2-ITU-R BT656 digital data input
202	D1_IN_4	I	Port 2-ITU-R BT656 digital data input
203	D1_IN_5	I	Port 2-ITU-R BT656 digital data input
204	D1_IN_6	I	Port 2-ITU-R BT656 digital data input
205	D1_IN_7	I	Port 2-ITU-R BT656 digital data input
206	FIELD ID_PORT2	I	Port 2-Odd/Even Field identification
207	VSYNC_PORT2	I	Port 2-Vertical sync or reference
208	HSYNC_PORT2	I	Port 2-Horizontal sync or reference

7.2.2 DISPLAY

■ VAW1081 (FLKY ASSY :V551)

• FL DISPLAY

● Pin Assignment



● Anode Connection

	12G	11G	10G	9G	8G	7G	6G	5G	4G	3G	2G	1G
P1	PLAY▷	d	d	d	d	d	d	d	d	d	d	NTSC
P2	⇦	n	n	n	n	n	n	n	n	n	n	MN
P3	REC○	p	p	p	p	p	p	p	p	p	p	VPS
P4	○REC	r	r	r	r	r	r	r	r	r	r	OVER
P5	⇨	e	e	e	e	e	e	e	e	e	e	EP
P6	▷PLAY	c	c	c	c	c	c	c	c	c	c	LP
P7	DVD	g	g	g	g	g	g	g	g	g	g	SAP
P8	▷	m	m	m	m	m	m	m	m	m	m	R
P9	◁	f	f	f	f	f	f	f	f	f	f	L
P10	HDD	b	b	b	b	b	b	b	b	b	b	SP
P11	–	k	k	k	k	k	k	k	k	k	k	AUTO
P12	–	j	j	j	j	j	j	j	j	j	j	FINE
P13	–	h	h	h	h	h	h	h	h	h	h	DISC
P14	–	a	a	a	a	a	a	a	a	a	a	◷
P15	–	PL	▷	PM	2	▷	REM	P	CD	R	CH	–
P16	–	H	Col	M	3	S	H	V	M	W	S	PDC

● Pin Connection

PIN NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
CONNECTION	F-	NX	NP	NP	NX	NX	NX	NX	1G	2G	3G	4G	5G	6G	7G	8G	9G	10G	11G	12G	P16	P15	P14	P13	P12	P11	P10	NX	NX	NX	NX	NX	P9	P8	P7

36	37	38	39	40	41	42	43	44	45	46	47	48	49
P6	P5	P4	P3	P2	P1	NX	NX	NX	NX	NP	NP	NX	F+

NOTE
1) F+, F- : Filament Pin
2) NP : No Pin
3) NX : No Extended Pin
4) nG : Grid Pin
5) Pn : Anode Pin

7.2.3 CLEANING

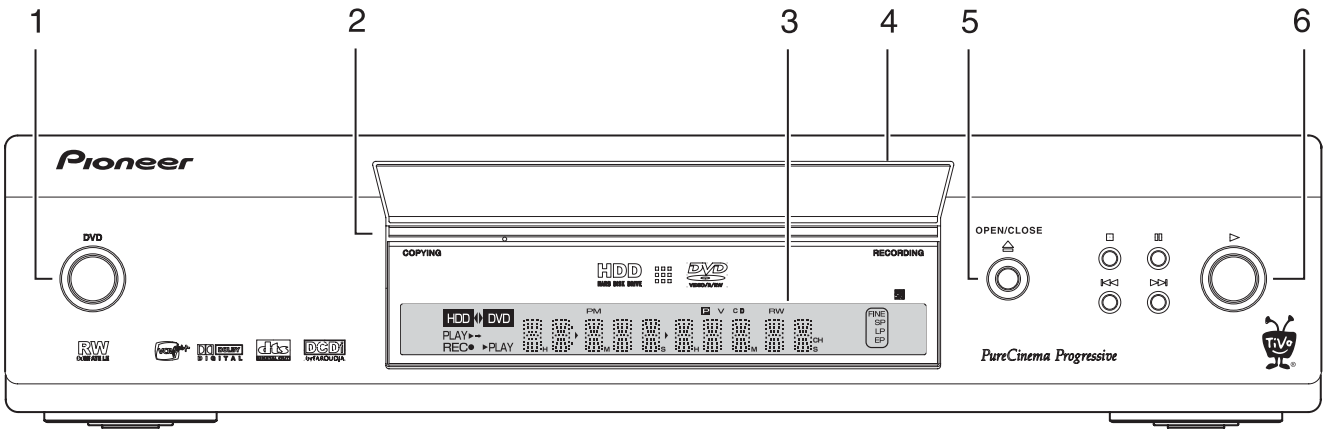
Before shipping out the product, be sure to clean the following positions by using the prescribed cleaning tools:

Position to be cleaned	Cleaning tools
Pickup lenses	Cleaning liquid : GEM1004 Cleaning paper : GED-008

Position to be cleaned	Cleaning tools
Fans	Cleaning paper : GED-008

8. PANEL FACILITIES

Front Panel Reference

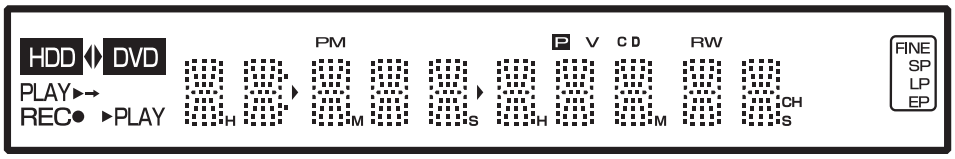


1 . DVD Button: Press this to go to the DVD screen.

2 . Light Strip: There are three lights (LEDs) under this clear plastic strip.

- The orange "copy" light on the left comes on when the Recorder is copying a program to a DVD.
- The blue "play" light in the middle comes on when the Recorder is playing a recording from Now Playing or a DVD, or CD.
- The red "record" light on the right comes on when the Recorder is recording a program to Now Playing.

3 . Status Display: The following illustration shows the placement of lights in the status display. The display in this area changes to reflect the current state of the Recorder.



For example, when you first turn on power for the Recorder, you see a "Power On" message in the center of the display; and when the Recorder is displaying a TiVo screen, such as TiVo Central, you see the word "TiVo." In addition, this area reflects input from the remote control when you use features such as searching for a title or a chapter of a DVD.

Other useful messages:

- When playing a CD, an "S"appears for shuffle mode, an "R"for repeat. In repeat mode "DSC"(ALL) or "TRK"(ONE) also appear, depending on whether the whole disc will repeat or only a single track.
- While copying a program from Now Playing to a DVD, the percent complete displays.
- While watching a recording from Now Playing, the display shows how far into the recording you are. (E.g., "1 07 00" means you have watched one hour and seven minutes of the recording.)
- While watching live TV, the channel number appears on the right side, near the symbol "CH."
- When progressive mode is on, a "P" appears at the top of the display area.

- While recording a program to Now Playing, the recording's video quality shows on the right side of the display: "Extreme (Fine)"; SP for "High (SP)"; LP for "Medium (LP)"; EP for "Basic (EP)."
- If a disc is in the tray, a symbol for the kind of disc appears at the top of the display: RW for DVD-RW; R for DVD-R; V for a video DVD; CD for a CD.

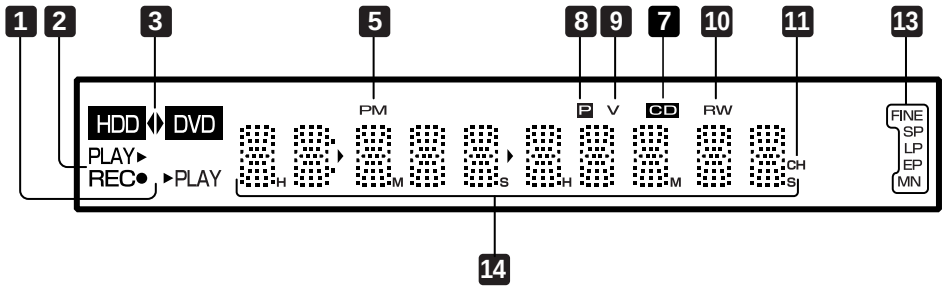
4 . Disc Tray : Opens and closes when you press the EJECT button on the front panel of the Recorder.

5 . EJECT Button (⏏): Press to open or close the disc tray.

6 . Control Buttons : These buttons work just like the buttons on the Recorder's remote control (see the inside front cover for more information). They include:

- STOP (■)
- PAUSE (❚❚)
- PLAY (►)
- SKIP FWD (►►❙)
- SKIP BACK (❙◄◄)

Display



1 Record/play indicator

2 Play indicator

3 HDD exchange DVD indicator

5 PM indicator

7 CD indicator

8 P indicator

9 V indicator

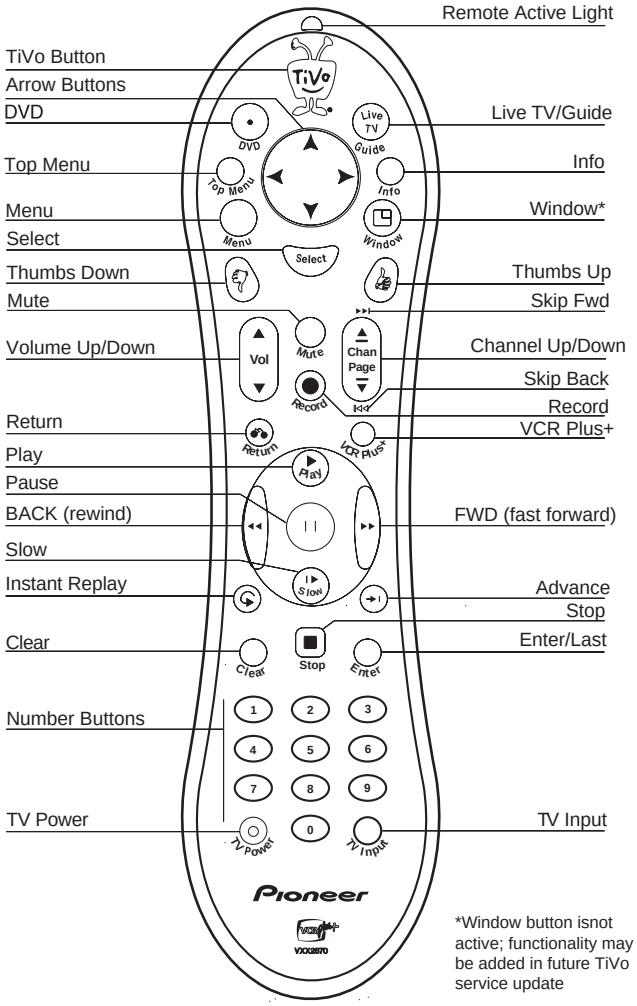
10 RW indicator

11 CH indicator

13 FINE / SP / LP / EP / MN

14 CHARACTER DISPLAY

Remote control



*Window button isnot active; functionality may be added in future TiVo service update

TiVo Central, Showcases, or TiVolution Magazine (cont.)

This icon appears if a playable DVD is inserted.

This icon appears if a playable CD is inserted.

This icon appears if a copy to DVD is in progress. All DVD functions are unavailable (playing a disc, copying to another DVD, etc.).

To Do List & View Upcoming Episodes

(These icons appear beside programs scheduled to be recorded.)

Program is an individual recording (not part of a Season Pass® or WishList®). In other places, it means an item has been selected.

Program will be recorded as part of a Season Pass.

Program will be recorded as part of a WishList.

Channel Banner

(These icons appear in the large channel banner.)

Select to start or stop a recording.

Select to display or turn on Parental Controls.

Select to read new messages.

Select to search for a specific title on the DVD or a specific chapter or time within a title.

Select to choose a different Repeat setting for a DVD.

Appears if you are watching a DVD with multiple camera angles. Select to change the camera angle.

Select to change the audio track and subtitle language settings for the current disc.

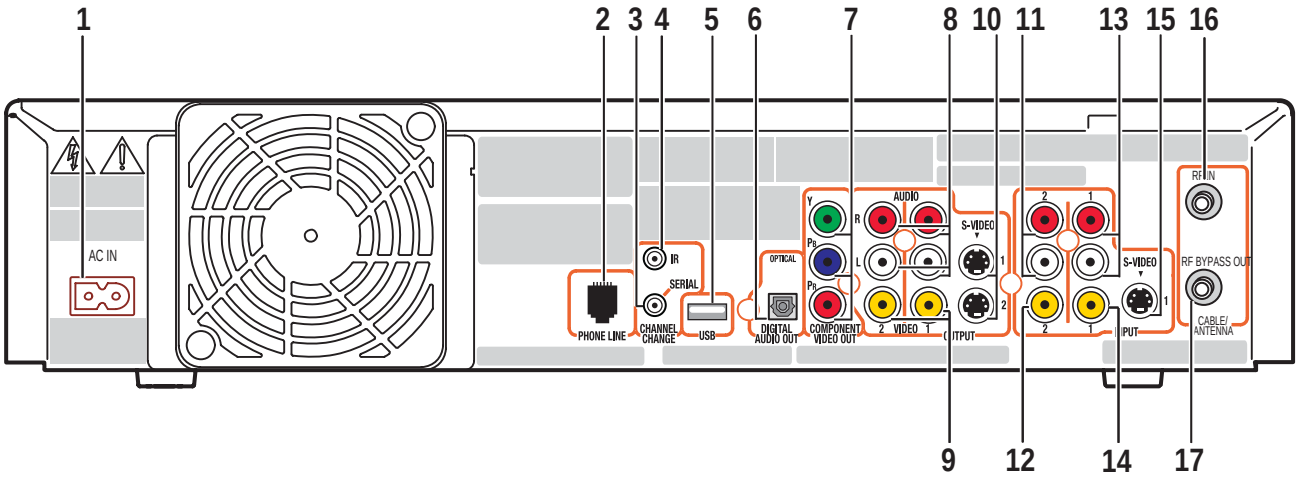
(*This icon appears if you have the Recorder set to Progressive Output.*) By default, the Recorder automatically detects whether a program viewed in progressive (high quality video) format should be shown in Film or Video format. In very rare circumstances, auto detection may result in poor image quality for programs that should be displayed in Video format (relatively few programs should use Film format). In these cases, you can select this icon to turn off auto-detection for an individual program.

Rear Panel_1

▶▶ Back Panel Reference

This section provides general information about the connections on the back panel of the Pioneer DVD Recorder with TiVo.

Remember, always connect cables from the OUT connector of one device to the IN connector of the next. Never connect an IN to an IN or an OUT to an OUT.



1 . AC ~ In: (Connects to A/C power.) The Recorder does not use a separate on and off switch; plugging it into the wall socket switches it on.

2 . Phone Line: (Connects to phone line.) The Recorder uses the phone line to get program listings and to communicate with the TiVo service. If you already have a phone line connected to your cable box, use the provided splitter.

3 . Channel Change/Serial: (Connects to cable or satellite box; a Serial/Data connector is not available on all cable or satellite boxes.) This connection enables the Recorder to change channels on a cable or satellite box.

4 . Channel Change/IR: (Connects to cable or satellite box; IR stands for *infrared.*) This connection enables the Recorder to change channels on your cable or satellite box. The purple end of the IR Control cable plugs into the Recorder. The two emitters on the other end of the cable are placed in front of the IR sensor on the cable and/or satellite box.

5 . USB: (Universal Serial Bus.) Use with a USB network adapter (not included) to connect to a home network, then use a network's shared Internet connection to connect to the TiVo service. Use the connection to a home network to take advantage of the TiVo Home Media Option premium feature package (sold separately).

6 . Optical Digital Audio Output: (Connects to A/V receiver.) Use the optical digital audio output jack to connect the Recorder to an A/V receiver with optical digital audio input. To do so, you need an Optical Digital Audio cable (not supplied). The Recorder supports the Dolby Digital and DTS (Digital Theater Systems) digital audio formats. Ordinarily, the Recorder produces tones to indicate when certain buttons on the remote

Rear Panel_2

control are pressed. If you use optical digital audio output, you may not hear these tones. You must also establish a video connection using either an S-Video cable, the yellow plug on a Composite A/V cable, or a Component Video cable.

7 . Component Video Output: (Connects to TV.) Component video provides the highest picture quality. You must also establish an audio connection using either the white and red plugs on a Composite A/V cable, or an Optical Digital Audio cable.

8 . Composite Audio Outputs: (Connects to TV.) For composite audio out, connect the white and red plugs on a Composite A/V cable to either the red and white outputs labeled "1" or the red and white outputs labeled "2." You must also establish a video connection using either an S-Video cable, the yellow plug on a Composite A/V cable, or a Component Video cable.

9. Composite Video Outputs: (Connects to TV.) Composite video provides a picture with very good quality. You must also establish an audio connection using either the white and red plugs on a Composite A/V cable, or an Optical Digital Audio cable.

10. S-Video Outputs: (Connects to TV.) S-Video provides a higher quality picture than composite. You must also establish an audio connection using either the white and red plugs on a Composite A/V cable, or an Optical Digital Audio cable.

11 . Composite Audio Input 2: (Connects to VCR or video camera.) Plug in the red and white ends of a Composite A/V cable to make an audio connection. You must also establish a video connection using the yellow end on a Composite A/V cable.

12 . Composite Video Input 2: (Connects to VCR or video camera.) Plug in the yellow end of a Composite A/V cable to make a video connection. You must also establish an audio connection using the red and white ends of a Composite A/V cable.

13 . Composite Audio Input 1: (Connects to satellite or cable box.) Plug in the red and white ends of a Composite A/V cable to make an audio connection. You must also establish a video connection using either an S-Video cable or the yellow end of a Composite A/V cable.

14 . Composite Video Input 1: (Connects to satellite or cable box.) Plug in the yellow end of a Composite A/V cable to make a composite video connection. You must also establish an audio connection using the red and white ends of a Composite A/V cable.

15 . S-Video Input: (Connects to satellite or cable box. An S-Video connector is not available on all satellite or cable boxes.) You must also establish an audio connection using the red and white ends of a Composite A/V cable.

16 . RF In: (Connects to a satellite or cable box, to cable without a box, or to antenna.) Use this connector if you are using an RF Coaxial cable to connect the cable box (or cable from the wall) to the Recorder.

17 . RF Bypass Out: (Connects to TV.) Any audio/video signal passed to the Recorder through the RF In connector passes out of the Recorder through this connector. Features of the TiVo service such as recording and control of live TV are not available on a signal from this connector.